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United States Court of Appeals
for the Federal Circuit

Nos. 01-1063, 01-1083

MOBA, B.V., STAALKAT, B.V.,
and FPS FOOD PROCESSING SYSTEMS, INC.,

Plaintiffs-Cross Appellants,

v.

DIAMOND AUTOMATION, INC.,

Defendant-Appellant.

DECIDED: April 1, 2003

Before RADER, SCHALL, and BRYSON Circuit Judges.

Opinion for the court filed PER CURIAM. Concurring opinions filed by Circuit Judges RADER, and BRYSON.

PER CURIAM.

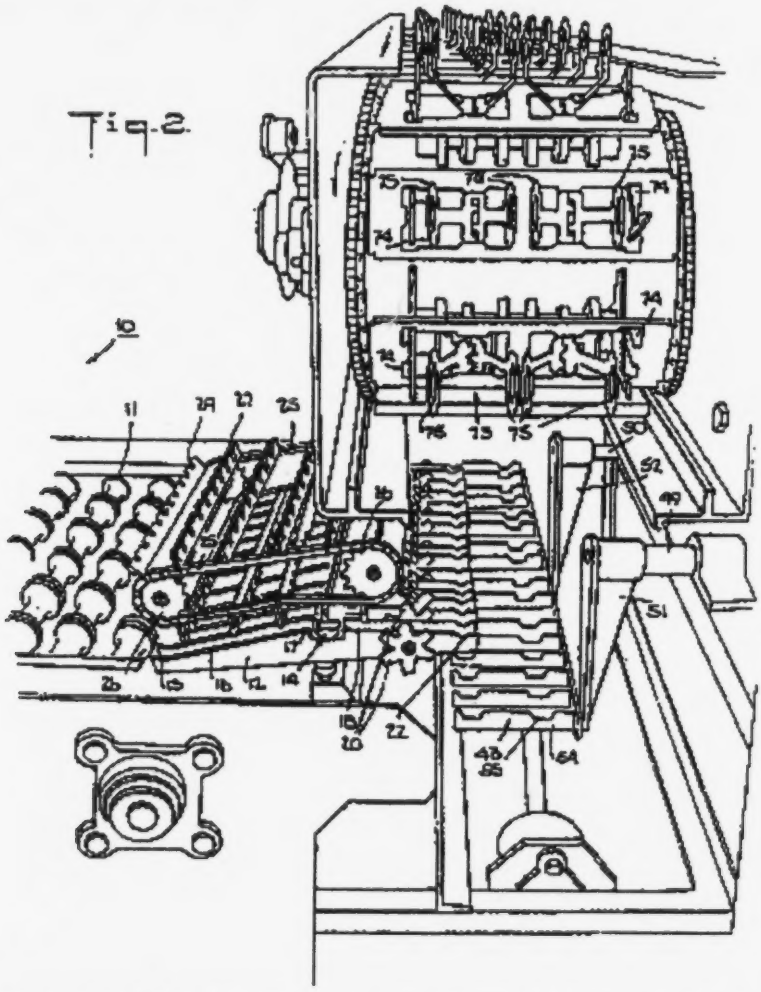
At trial, a jury in the United States District Court for the Eastern District of Pennsylvania found that Moba, B.V., Staalkat, B.V., and FPS Food Processing Systems, Inc. (collectively FPS) did not infringe patents assigned to Diamond Automation, Inc. (Diamond). See *Moba, B.V. v. Diamond Automation, Inc.*, No. 95-CV-2631, 2000 U.S. Dist. LEXIS 15483, at *43, 2000 WL 1521621 (E.D.Pa. Sept. 29, 2000). In response to a motion for judgment as a matter of law (JMOL), the district court correctly discerned that substantial evidence supports the jury's

verdict that machines sold by FPS and used by its customers do not practice the method of United States Patent No. 4,519,494 ('494 patent). However, no reasonable jury could find that machines sold by FPS and used by its customers do not practice the method of United States Patent No. 4,519,505 ('505 patent). Thus, this court affirms-in-part, reverses-in-part, and remands for a determination of damages.

I.

Diamond is a Michigan corporation that manufactures and sells high-speed egg processing machines to sort batches of eggs into different categories by weight and quality. Diamond developed these machines during the early 1980s with technology that significantly increased the processing speed for eggs. Diamond obtained various patents covering aspects of that technology, including the '494 and '505 patents, and United States Patent Nos. 4,569,444 ('444 patent) and 4,505,373 ('373 patent). While Diamond asserted all of these patents at trial, only the '505 and '494 patents appear in this appeal. The '505 patent relates generally to "front end" processing of eggs, while the '494 patent relates generally to "back end" processing of eggs.

The "front end" process first washes the eggs, then introduces them into a candling station where a high intensity light source checks the eggs for defects such as blood spots or cracks. The process then weighs the eggs. A computer stores this information for use in sorting the eggs at a later point. Figure 2 of the '505 patent illustrates an embodiment of the invention designed to weigh eggs and to lift them to an overhead conveyor.



Claim 24 of the '505 patent corresponds generally to the subject matter of Fig. 2:

24. A method for advancing a plurality of rows of eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, comprising,

conveying eggs from said candling station to elongated guide means disposed adjacent to said candling station,

continuously advancing said eggs on said guide means through said weighing stations,

simultaneously with said step of advancing, weighing said eggs at said weighing stations,

guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations,

guiding further eggs to said plurality of holding stations, and lifting said eggs simultaneously from said holding stations and said plurality of longitudinally spaced-apart locations.

'505 patent, col. 13, ll. 33-54 (emphasis added).

The "back end" process receives eggs from "front end" processing and transfers them to an overhead conveyor. This conveyor carries the eggs in rows until dropping off each individual egg at a different receiving station based on the information in the computer. At each station, the eggs are either packaged or discarded. Figure 8 of the '494 patent illustrates an embodiment of the invention designed to receive eggs from an overhead conveyor for transport to a packer:

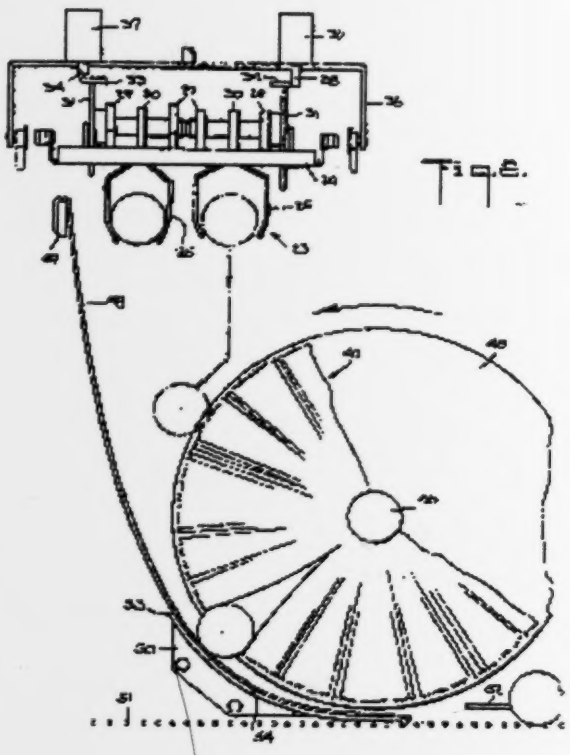


Fig. 8.

Claim 28 of the '494 patent corresponds generally to the subject matter of Fig. 8:

28. A method of transferring eggs delivered in spaced-apart aligned relationship by a first conveyor means to a receiving station, comprising the steps of,

delivering eggs to said receiving station in parallel spaced apart rows on said first conveyor means,

releasing eggs from said first conveyor means at the receiving station in accordance with a predetermined requirement,

positioning a receiving means below the first conveyor means so as to receive therein and deliver to a

common member the eggs released from the parallel spaced-apart rows of the first conveyor means,

receiving said eggs in the receiving means disposed at said receiving station whereby the released eggs from both said parallel spaced apart rows of eggs fall on and are received by said receiving means,

rotating the receiving means downwardly and away from said first conveyor means to urge the received eggs downwardly,

guiding said eggs received in said receiving means downwardly and away from said receiving means, and

conveying said eggs away from said receiving means on second conveyor means,

said step of releasing comprising releasing said eggs successively from said first conveyor means at said receiving station along the length of said receiving means, and said step of conveying comprising conveying said eggs individually in rows away from said receiving means on said second conveyor means.

'494 patent, col. 12, ll. 9-40 (emphasis added).

Moba, B.V., and Staalkat, B.V., are Dutch companies that also manufacture and sell high-speed egg processing machines, such as the Moba Omnia and the Staalkat Selecta. FPS Food Processing, a Pennsylvania corporation, sells Moba's and Staalkat's egg processing machines in the United States. In the United States market, FPS and Diamond are the only significant competitors in the manufacture and sale of high-speed egg processing machines.

In 1994, Diamond filed a patent infringement suit in the United States District Court for the Eastern District of Michigan against FPS. The district court dismissed that case for lack of personal jurisdiction. In 1995, FPS filed suit in the United States District Court for the Eastern District of Pennsylvania seeking a declaratory judgment that the '444, '494, '373, and '505 patents are invalid and not infringed by the Moba Omnia and the Staalkat Selecta. Diamond filed a declaratory judgment counterclaim that the patents are valid and infringed. After discovery, the district court construed the patent claims. Then a jury heard the case from January 28, 2000 to February 25, 2000. On February 22, 2000, before the jury retired to consider its verdict, Diamond moved for entry of JMOL under Rule 50(a) of the Federal Rules of Civil Procedure that FPS infringed and induced infringement of the four patents. In its February 25, 2000 verdict, the jury found that those patents were not invalid and not infringed. On March 6, 2000, the district court denied Diamond's February 22, 2000 JMOL motion, and entered judgment in favor of Diamond on the validity issues and in favor of FPS on the infringement issues. Diamond renewed its motion for JMOL regarding infringement, which the district court again denied.

Diamond argues that claim 24 of the '505 patent and claim 28 of the '494 patent cover methods used in both the Moba Omnia and the Staalkat Selecta. Diamond also contends that FPS has induced its customers to infringe those claims by selling them the Moba Omnia and the Staalkat Selecta and by training them to use those machines. Diamond appeals, therefore, the district court's denial of JMOL on these issues. FPS cross-appeals the jury's determination that claim 24 of the '505 patent and claim 28 of the '494 patent are not invalid. Because Diamond no longer pursues any claims arising from the '444 or '373 patents, or claim 34 of the '494

patent, this court need not address those questions. This court has jurisdiction over the present appeal under 28 U.S.C. § 1295(a)(1) (2000).

II.

This court reviews claim construction without deference. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172 (Fed.Cir.1998) (en banc). This court accords substantial deference to a jury's factual application of a claim construction to the accused device in an infringement determination. *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1348-49, 55 USPQ2d 1161, 1164 (Fed.Cir.2000).

This court reviews a district court's denial of JMOL without deference, reversing only if substantial evidence does not support a jury's factual findings or if the law cannot support the legal conclusions underpinning the jury's factual findings. *Cybor Corp.*, 138 F.3d at 1454. "A district court may overturn a jury's verdict only if upon the record before the jury, reasonable jurors could not have reached that verdict." *LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc.*, 275 F.3d 1347, 1353, 61 USPQ2d 1193, 1197 (Fed.Cir.2001).

Claim language defines claim scope. *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121, 227 USPQ 577,586 (Fed.Cir.1985) (en banc). As a general rule, claim language is given the ordinary meaning of the words in the normal usage of the field of the invention. *Toro Co. v. White Consol. Indus.*, 199 F.3d 1295, 1299, 53 USPQ2d 1065, 1067 (Fed.Cir.1999). Nevertheless, the inventor may act as his own lexicographer and use the specification to supply new meanings for terms either explicitly or by implication. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979, 34 USPQ2d 1321, 1330 (Fed.Cir.1995) (en banc), aff'd, 517 U.S. 370, 116

S.Ct. 1384, 134 L.Ed.2d 577, 38 USPQ2d 1461 (1996). Thus, to help determine the proper construction of a patent claim, a construing court consults the written description, and, if in evidence, the prosecution history. *Id.* at 979-80.

After claim construction, the fact finder compares the properly construed claim with the allegedly infringing devices. *Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1360, 54 USPQ2d 1308, 1312 (Fed.Cir.2000). Infringement requires the patentee to show that the accused device contains or performs each limitation of the asserted claim, *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1211, 48 USPQ2d 1010, 1014-15 (Fed.Cir.1998), or an equivalent of each limitation not satisfied literally, *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). The sale or manufacture of equipment to perform a claimed method is not direct infringement within the meaning of 35 U.S.C. § 271(a). *Mendenhall v. Cedarapids, Inc.*, 5 F.3d 1557, 1579, 28 USPQ2d 1081, 1100 (Fed.Cir.1993).

In this case, the record shows that FPS's customers use the method of the Moba Omnia to process eggs in the United States. Hence, to show infringement Diamond needs only to prove that the Moba Omnia performs the method of claim 24 when it processes eggs.

"guiding steps"

Based upon its claim construction, the district court instructed the jury, in relevant part, that the guiding steps of claim 24 "are defined as follows: (1) Carrying eggs to holding stations; (2) Carrying eggs from the holding stations to the spaced apart location; and (3) Carrying more eggs to the holding stations." At trial, Diamond did not object to either the district court's

construction of "guiding steps" or to the jury instructions about that term. Following the jury verdict of non-infringement, the district court denied Diamond's JMOL motion. In its denial, the district court acknowledged that its interpretation of guiding steps left undetermined whether the claim requires sequential performance of the steps. Then the trial court reasoned that the jury reasonably could have determined from the testimony presented that sequential performance is a necessary characteristic of the "guiding steps." The district court's instructions to the jury did not require sequential performance. In essence, the district court allowed the jury to add an additional limitation to the district court's construction of "guiding steps." In this, the district court erred. Claim construction is a question of law and is not the province of the jury. *Markman*, 52 F.3d at 979.

This error takes on significance in this appeal because the jury found that the Moba Omnia does not infringe. The record before us discloses no alternative basis upon which a reasonable jury could find that the Moba Omnia does not infringe, other than that the Moba Omnia does not satisfy the guiding steps limitation. Thus, by allowing the jury to import an additional limitation into the claims, the district court fundamentally altered the verdict.

Because Diamond did not object to the district court's claim construction or instructions to the jury, FPS contends that Diamond has waived its right to argue the interpretation of "guiding steps" on appeal. The doctrine of waiver as applied to claim construction prevents a party from offering a new claim construction on appeal. *Interactive Gift Express v. Compuserve Inc.*, 256 F.3d 1323, 1346, 59 USPQ2d 1401, 1418 (Fed.Cir.2001). Moreover, a party's objection to a jury instruction is waived unless that party objects to the instruction before the jury retires to consider the verdict. Fed.R.Civ.P. 51.

In this case, however, waiver does not bar Diamond's argument. Diamond does not now contest the district court's instruction to the jury on the meaning of "guiding steps." Essentially Diamond does not wish to alter the district court's claim construction on appeal, but seeks enforcement of the trial court's claim construction.

Diamond has argued consistently, in its JMOL motions and in its argument on appeal here, that "[n]either the language of the claim itself nor the Court's order defining this language requires that the 'guiding steps' occur separately." Thus, Diamond has consistently protested the error that this court currently reviews on appeal. Thus, this court will not apply waiver to prevent Diamond from protecting the original breadth of the binding claim construction presented by the district court to the jury from post facto imposition of an additional limitation. *Interactive Gift Express*, 256 F.3d at 1346. Application of waiver in this case would essentially render unreviewable the district court's error. In sum, Diamond has not waived its argument that the guiding steps may be performed simultaneously.

Nowhere does the plain language of claim 24 require separate and consecutive performance of the various guiding steps. Rather, such a construction is contrary to the teachings of the '505 patent. For example, the specification explicitly describes simultaneous performance of guiding steps two and three. '505 patent, col. 5, l. 54 to col. 6, l. 3. Moreover, simultaneous performance of the guiding steps is consistent with operating at a significant rate of speed, a stated object of the invention. '505 patent, col. 2, ll. 3-7. The prosecution history is also consistent with this claim construction. Hence, this court, like the district court as well, construes the guiding steps to include simultaneous performance.

FPS argues that, irrespective of whether claim 24 allows simultaneity, the method practiced by the Moba Omnia cannot infringe literally because it does not perform entirely at least one of the required guiding steps. This argument simply repackages FPS's argument for sequential performance of the guiding steps. FPS's argument focuses on distinctions between the Moba Omnia and the patentee's preferred embodiment for the claim 24 method. This court has discredited an infringement analysis for method claims that examines distinctions between implementing apparatuses. *Amstar Corp. v. Envirotech Corp.*, 730 F.2d 1476, 1482, 221 USPQ 649, 653 (Fed.Cir.1984) ("[T]he law recognizes the irrelevance of apparatus distinctions in determining infringement of process claims.").

Like the device of Fig. 2, the Moba Omnia lifts eggs to an overhead conveyor for transport. To position the eggs for lifting, the Moba Omnia employs a continuously moving transport conveyor that slows without stopping as each egg passes under the overhead conveyor. In these actions, the Moba Omnia practices all three guiding steps. With a focus on the movement of the eggs (the subject matter of the method claim) in the Moba Omnia, rather than the movement of the Moba Omnia itself, each of these steps is evident. As required by the first guiding step of claim 24, the Moba Omnia moves a first egg to a holding station. The Moba Omnia then moves the first egg to a spaced-apart location, the second guiding step. Simultaneously, the Moba Omnia moves a second egg to the holding station to perform the third guiding step. The first and second eggs are then ready for simultaneous lifting. In sum, the record evidence provides no basis upon which a reasonable jury could find that the Moba Omnia does not perform the three guiding steps of the '505 patent's claim 24.

"holding station"

The district court correctly construed the "holding station" of claim 24 of the '505 patent as "a first location in space to which an egg is moved and at which the egg may maintain position until the egg is lifted simultaneously with an egg at a 'spaced-apart location.' " Nonetheless, FPS argues that the district court's construction requires that an egg cease motion before the lift to the overhead conveyor. The claims simply do not require a specific temporal limitation associated with the term "holding." Indeed the specification states that the holding station positions an egg relative to the overhead conveyor for pick-up to the overhead conveyor. *See, e.g.*, '505 patent, col. 2, ll. 44-58, col. 6, ll. 4-8. The specification actually speaks of eggs that are "held" as they move. *Id.* at col. 5, ll. 2-6 ("The disks each include a plurality of peripheral recesses which are disposed in horizontal alignment so as to receive and hold eggs advanced along the guide bars as they are transferred to the holding stations."). Moreover, the ordinary meaning of "to hold" is "to keep in position, guide, control, or manage." The Oxford English Dictionary (2d ed. 1989). This meaning also imposes no requirement that an object remain stationary.

Moreover, as this court has repeatedly counseled, the best indicator of claim meaning is its usage in context as understood by one of skill in the art at the time of invention. *Markman*, 52 F.3d at 986. In this instance, the context is the swift and safe movement of eggs. As indicated by the specification, the process holds the egg at the same time it moves the egg, thus achieving the dual goals of precision and speed. The process may hold and move an egg at the same time. In sum, the district court correctly construed the term "holding." The term "holding station" also does not require lack of motion.

To show that the Moba Omnia does not include a holding station, FPS relies entirely upon evidence that eggs in the Moba Omnia do not stop before they are picked up. As described above, however, the claim does not require a stationary holding station. To satisfy the holding station requirement, the Moba Omnia needs only employ "a first location in space to which an egg is moved and at which the egg may maintain position until the egg is lifted simultaneously with an egg at a 'spaced-apart location,' " whether or not eggs stop before the pick up. The record shows that the Moba Omnia employs such a first location. In view of the undisputed record evidence, no reasonable jury could find that the Moba Omnia does not move an egg to a holding station as claimed.

In sum, the evidence of record consistent with the correct claim construction shows that the method performed by the Moba Omnia includes all three "guiding steps" and that the Omnia moves eggs to a "holding station." Because no reasonable jury could find on the record evidence that the method performed by the Moba Omnia does not infringe literally and directly claim 24 of the '505 patent, the district court erred in not granting JMOL on that issue.

B.

Turning to claim 28 of the '444 patent, the parties dispute the district court's construction of the limitation "predetermined sequence" and two limitations containing the phrase "downwardly and away." Because construction of the first "downwardly and away" limitation disposes of the question of infringement, this court need not address the other limitations.

The first "downwardly and away" limitation recites: "rotating the receiving means downwardly and away from said first conveyor means to urge the received

eggs downwardly." The district court construed this claim language: "[T]he receiving means* must be rotated downwardly (i.e. toward the ground) and be rotated away from the main egg-carrying conveyor from which the eggs are released." With some slight clarification, the district court construed this claim limitation correctly. The slight clarification notes that the limitation constrains the motion of the received eggs as well as the motion of the receiving means. Specifically, the first "downwardly and away" limitation also requires that the receiving means move the eggs downwardly.

The claim recites that the receiving means "urge[s] the received eggs downwardly." The patent does not explicitly define "urge." In one sense, "to urge" means simply to press or to push. *See, e.g.*, The Oxford English Dictionary (2d ed. 1989). This meaning of "urge," however, would place the preferred embodiment outside the claim scope. *Vitronics*, at 1583 (a claim interpretation that puts the preferred embodiment outside the claim is "rarely, if ever, correct and would require a highly persuasive evidentiary support."). Moreover this definition of "urge" makes infringement depend on the downward force exerted on the eggs by the rotating receiving means. A receiving means, such as that shown in Fig. 4 of the '444 patent, may rotate downward slowly and support the received eggs against the force of gravity. In doing so, the downward rotation would exert an upward force on the received eggs, i.e., it would "urge" the received eggs upward rather than downward as claim 28 requires. The patent does not

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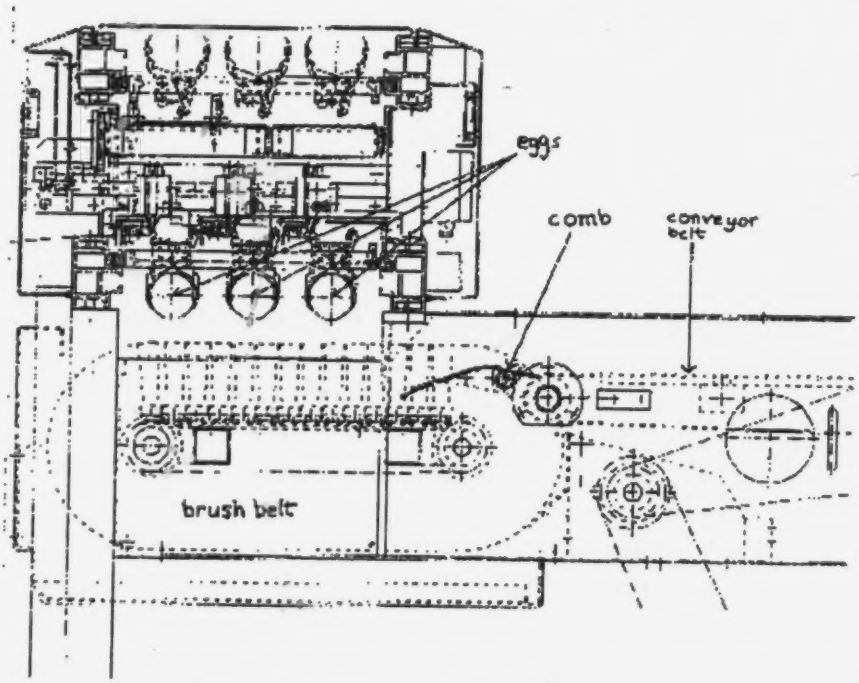
* The district court determined that the language "receiving means" does not invoke § 112, ¶ 6. As the district court's failure to construe this limitation as means-plus-function is not disputed by the parties, this court offers no judgment on the correctness of that determination.

show, however, that the downward force is a defining limitation.

Another ordinary meaning of "to urge" avoids exclusion of the preferred embodiment from the claims. Specifically, "to urge" may mean "[t]o cause to move, hasten, or gather speed." The Oxford English Dictionary (2d ed.1989). This definition receives support from the patent specification. The specification clarifies that "to urge" means broadly to move or to carry and that the receiving means may slow the motion of the eggs. For example, the patent specification notes that the receiving means "reduce[s] the speed at which the eggs fall and gently move[s] the eggs downwardly and outwardly away from carriage assemblies." '494 patent, col. 5, ll. 55-57 (emphases added); *see also Id.* col. 6, ll. 64-64, col. 7, ll. 1-3. Thus, in the context of this patent, this court employs the broader meaning of "to urge," namely, to cause to move.

The Staalkat Selecta employs a brush belt to receive eggs, as shown below. Once the brush belt receives the eggs, it transports the eggs horizontally to a comb mechanism that lifts the eggs from within the bristles of the brush belt. The comb then guides the eggs downward to a second transport conveyor.



At trial, FPS presented substantial evidence that the brush belt of the Staalkat Selecta does not move the eggs downwardly as required by the literal language of claim 28. FPS also presented substantial evidence to support that the Staalkat Selecta does not infringe claim 28 under the doctrine of equivalents. For example, Dr. Kirk, an expert witness for FPS, testified that the Selecta's brush belt does not guide eggs downwardly. Rather, the brush guides eggs over a linear path rather than a curved path. As a result, the eggs moved upward rather than downward relative to their initial position upon receipt in the brush belt. This evidence supports the jury's verdict of no infringement. Even applying the doctrine of equivalents, the Staalkat Selecta performs a different function in a different way to obtain a different result from the language of the claim limitation. Thus, substantial evidence supports the jury's finding that the Staalkat Selecta's method does not satisfy the first "downwardly and away" limitation of claim 28, either literally or under the doctrine of equivalents. Hence, this

court affirms the district court's denial of JMOL. Because the Staalkat Selecta does not satisfy the first "downwardly and away" limitation, this court need not reach other potential grounds to support the jury's verdict.

III.

The Patent Act imposes indirect infringement liability on a party who actively induces others to directly infringe a patent. 35 U.S.C. § 271(b) (1994). Diamond appeals the district court's denial of its motion for JMOL that FPS indirectly infringes claim 24 of the '505 patent and claim 28 of the '444 patent. In reviewing the district court's denial of Diamond's JMOL motion, this court presumes that the jury resolved all factual disputes in favor of the prevailing party and leaves those findings undisturbed as long as substantial evidence supports them. *Sibia Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1354, 55 USPQ2d 1927, 1930 (Fed.Cir.2000).

The district court denied Diamond's JMOL on inducement because the jury determined that "none of the machines sold by FPS infringe any of the patents in suit." *Moba*, No. 95-CV-2631, 2000 U.S. Dist. LEXIS 15483, at *43. Because this court upholds the verdict that claim 28 of the '444 patent is not directly infringed, the trial court correctly determined that FPS does not indirectly infringe that claim. *Met-Coil Sys. Corp. v. Korners Unlimited, Inc.*, 803 F.2d 684, 687, 231 USPQ 474, 477 (Fed.Cir.1986) ("[T]here can be no inducement of infringement without direct infringement by some party."). However, this court has held that the Moba Omnia method directly infringed claim 24 of the '505 patent. Therefore, the issue of infringement by FPS depends on whether FPS "actively induce[d] infringement" within the meaning of 35 U.S.C. § 271(b).

Although § 271(b) does not use the word "knowingly," this court has uniformly imposed a knowledge requirement. *Water Tech. Corp. v. Calco, Ltd.*, 850 F.2d 660, 7 USPQ2d 1097 (Fed.Cir.1988); *C.R. Bard, Inc. v. Advanced Card. Sys., Inc.*, 911 F.2d 670, 15 USPQ2d 1540 (Fed.Cir.1990). This court defined the generally applicable intent standard in *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1468-69, 15 USPQ2d 1525, 1528-29 (Fed.Cir.1990). In *Hewlett-Packard,* this court held that "proof of actual intent to cause the acts which constitute the infringement is a necessary prerequisite to finding active inducement" under § 271(b). *Hewlett- Packard*, 909 F.2d at 1469. Hewlett-Packard Co. (HP), was the assignee of the LaBarre patent on aspects of X-Y plotter technology. Bausch & Lomb, Inc. (B & L), manufactured and sold X-Y plotters and a variety of other electronic equipment through a division that it sold to Ametek, Inc. HP alleged that B & L induced infringement of the LaBarre patent by its sale to Ametek. This court found, however, that the sale did not evince an intent to induce infringement but, rather, merely an intent to sell at the highest price. This court particularly noted that B & L had no interest in, nor control over, Ametek's use of the purchased division. Implicit in this court's determination was that Ametek could have employed the purchased division in a wide range of non- infringing activity. Moreover, this court noted that the agreement to develop a non-infringing plotter established, if anything, B & L's intent to avoid any inducement of infringement.

In this case, the only intent required of FPS is the intent to cause the acts that constitute infringement. *Hewlett-Packard*, 909 F.2d at 1469. Although Diamond argues that the record shows that FPS sold its customers the Moba Omnia and trained them to use the infringing method, active inducement is nonetheless a factual inquiry. Accordingly, this court declines to make a determination that no reasonable jury could conclude that FPS did not intend that its customers perform acts that constitute infringement. Therefore, this court remands for further inquiry into whether FPS indirectly infringes claim 24 of the '505 patent.

IV.

The Patent Act erects a presumption of validity for an issued patent. 35 U.S.C. § 282 (1994). Therefore, invalidity requires clear and convincing evidence. *Id.*; *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 54 USPQ2d 1673 (Fed.Cir.2000). Because this court has determined that FPS may infringe claim 24 of the '505 patent, depending on resolution of the inducement issue, this court also addresses FPS's appeal of the jury verdict upholding the validity of that claim. FPS argues that the claim is invalid as anticipated, not enabled, and not adequately described.

A.

A patent specification must contain an adequate written description. 35 U.S.C. § 112, ¶ 1 (1994). Whether a specification complies with the written description requirement of § 112, ¶ 1 is a question of fact that this court reviews for substantial evidence. *Advanced Display Sys.*, 212 F.3d at 1281.

FPS argues here that if claim 24 of the '505 patent encompasses lifting eggs from a moving conveyor, as this

court has determined, then claim 24 must be invalid because the '505 patent specification discloses no such conveyor mechanism. In support of this proposition, FPS cites to this court's decision in *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 45 USPQ2d 1498 (Fed.Cir.1998).

Federal Circuit case law reflects two applications of 35 U.S.C. § 112, ¶ 1. First, in 1967, this court's predecessor inaugurated use of § 112 to prevent the addition of new matter to claims. *In re Ruschig*, 54 C.C.P.A. 1551, 379 F.2d 990, 154 USPQ 118 (1967). As this court's predecessor noted, "[t]he function of the description requirement is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him." *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). Although the statute proscribes addition of new matter to a specification or claims under § 132, the United States Court of Customs and Patent Appeals decided to police the addition of new matter to claims separately using § 112. *In re Rasmussen*, 650 F.2d 1212, 1214, 211 USPQ 323, 325-26 (CCPA 1981). This court's predecessor explained that the use of § 132 or § 112 was synonymous because "a rejection of an amended claim under § 132 is equivalent to a rejection under § 112, first paragraph." *Id.* Since then, this court has continued to use § 112 to ensure that a patentee had possession at the time of filing of subject matter subsequently claimed. In this court's most recent application of the written description doctrine, it noted: "The purpose of the written description requirement is to prevent an applicant from later asserting that he invented that which he did not; the applicant for a patent is therefore required 'to recount his invention in such detail that his future claims can be determined "to be encompassed within his original creation.' " *Amgen Inc. v. Hoechst Marion Roussel Inc.*, 314 F.3d 1313, 1330, 65

USPQ2d 1385, 1397 (Fed.Cir.2003) (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561, 19 USPQ2d 1111, 1115 (Fed.Cir.1991)). In that setting, the written description is the metric against which a subsequently added claim is measured to determine if it is due the priority date of the original patent. *Id.* at 1560 ("The question raised by these situations is most often phrased as whether the application provides 'adequate support' for the claim(s) at issue; it has also been analyzed in terms of 'new matter' under 35 U.S.C. § 132."); *In re Wright*, 866 F.2d 422, 424, 9 USPQ2d 1649, 1651 (Fed.Cir.1989) ("When the scope of a claim has been changed by amendment in such a way as to justify an assertion that it is directed to a different invention than was the original claim, it is proper to inquire whether the newly claimed subject matter was described in the patent application when filed as the invention of the applicant. That is the essence of the so-called 'description requirement' of § 112, first paragraph.")

In *Gentry Gallery*, the patentee described in the specification a sectional sofa with a center console including recliner controls. The specification as filed clearly identified the console as the only possible location for the controls. From the specification, it was clear that the patentee considered placement of the controls in the center console "to be an essential element of his invention." *Gentry Gallery*, 134 F.3d at 1479. Hence, this court limited the scope of the patentee's claims to a sofa with controls located in a center console: "Accordingly, [the patentee's] original disclosure serves to limit the permissible breadth of his later-drafted claims." *Id.* at 1479 (emphasis added). Thus, because *Gentry Gallery* applied § 112, ¶ 1, to hold the patentee to the scope of its original filing, it does not apply in this case where FPS made no allegation at all that the disclosure of the '505 patent did not show possession of a later-filed claim.

The second application of the written description requirement is reflected in *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed.Cir.1997). There, this court invoked the written description requirement in a case without priority issues. Invoking § 112, *Lilly* required a precise definition of a DNA sequence in the patent specification. In more recent cases, however, this court has distinguished *Lilly*. For instance, in *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956 (Fed.Cir.2002), neither the specification nor the deposited biological material recited the precise "structure, formula, chemical name, or physical properties" required by *Lilly*. *Id.* at 964 (quoting *Lilly*, 119 F.3d at 1566). Although this court initially determined that the specification in *Enzo* did not satisfy the *Lilly* disclosure rule, it revisited the issue and remanded to the district court. The court instructed:

> On remand the court should determine whether a person of skill in the art would glean from the written description, including information obtainable from the deposits of the claimed sequences, subsequences, mutated variants and mixtures sufficient to demonstrate possession of the generic scope of the claims.

Enzo, 323 F.3d at 966. Similarly, in this court's most recent pronouncement, it noted:

> More recently, in *Enzo* Biochem, we clarified that *Eli Lilly* did not hold that all functional descriptions of genetic material necessarily fail as a matter of law to meet the written description requirement; rather, the requirement may be satisfied if in the knowledge of the art the disclosed

> function is sufficiently correlated to a particular, known structure.

Amgen, 314 F.3d at 1332.

The test for compliance with § 112 has always required sufficient information in the original disclosure to show that the inventor possessed the invention at the time of the original filing. See *Vas-Cath*, 935 F.2d at 1561 ("Adequate description of the invention guards against the inventor's overreaching by insisting that he recount his invention in such detail that his future claims can be determined to be encompassed within his original creation"). The possession test requires assessment from the viewpoint of one of skill in the art. *Id.* at 1563-64 ("the applicant must ... convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *(the invention")* (emphasis in original); *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989, 997, 54 USPQ2d 1227, 1232 (Fed.Cir.2000) ("The written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed' ") (citation omitted). In *Enzo* and *Amgen,* the record showed that the specification that taught one of skill in the art to make and use an invention also convinced that artisan that the inventor possessed the invention. Similarly in this case, the *Lilly* disclosure rule does not require a particular form of disclosure because one of skill could determine from the specification that the inventor possessed the invention at the time of filing.

Accordingly, substantial evidence supports the jury's finding that the '505 patent is not invalid for lack of an adequate written description. The '505 patent specification describes every element of claim 24 in

sufficient detail so that one of ordinary skill in the art would recognize that the inventor possessed the invention at the time of filing. FPS's contention that the '505 patent does not adequately disclose lifting eggs from a moving conveyor merely revives its non-infringement argument in the cloak of a validity challenge. As noted, the jury found that one of skill in the art would discern possession of the invention at the time of filing, a finding supported by substantial record evidence. Therefore, the trial court correctly determined that claim 24 is not invalid for lack of an adequate written description.

B.

The patent specification must disclose information sufficient to enable those skilled in the art to make and use the claimed invention. 35 U.S.C. § 112 ¶ 1. That some experimentation is required to practice the claimed invention is permissible, so long as it is not undue. *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed.Cir.1984). Enablement under 35 U.S.C. § 112, ¶ 1, is a question of law that this court reviews de novo. *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1268, 229 USPQ 805, 810 (Fed.Cir.1986). This court reviews a jury's underlying factual determinations related to enablement for substantial evidence. *Mitsubishi Elec. Corp. v. Ampex Corp.*, 190 F.3d 1300, 1309, 51 USPQ2d 1910, 1916 (Fed.Cir.1999).

FPS contends that the specification does not enable one of ordinary skill in the art to lift eggs from a moving conveyor belt without undue experimentation. Nevertheless, FPS presented no record evidence recounting the amount of experimentation one of skill in the art would require to develop the conveyor lifting system of the Moba Omnia in view of the '505 patent disclosure. Rather, FPS asked the jury and asks this

court to draw the inference of undue experimentation based on limited general testimony of the development of that conveyor lifting mechanism taken separate from the disclosure of the '505 patent. The trial court found that evidence insufficient to prove undue experimentation. Hence, this court holds that substantial evidence supports the verdict of the jury that claim 24 was not invalid for lack of enablement.

C.

Anticipation under 35 U.S.C. § 102 requires that a single prior art reference disclose each and every limitation of the claimed invention. *Electro Med. Sys. S.A. v. Cooper Life Sci.*, 34 F.3d 1048, 1052, 32 USPQ2d 1017, 1019 (Fed.Cir.1994). This court reviews a jury's conclusions on anticipation for substantial evidence. *Advanced Display Sys.*, 212 F.3d at 1281.

FPS argues that claim 24 of the '505 patent is anticipated by its own Moba prior art machines, such as the Types 4-9 or Type 68 machines that provided the basis for the Omnia lifting mechanism. Nevertheless, as was testified by FPS's own expert witness, Dr. Kirk, those prior art Moba machines do not continuously advance eggs through weighing stations while simultaneously weighing the eggs, as is required by claim 24. Hence, this court finds that claim 24 is not anticipated as a matter of law by the asserted Moba prior art machines.

In sum, because substantial evidence supports the jury verdict that claim 24 of the '505 patent is not invalid, this court affirms that portion of the district court judgment.

CONCLUSION

The district court correctly determined that substantial evidence supports the jury verdict that FPS does not infringe claim 28 of the '444 patent. This court affirms, therefore, the district court's denial of Diamond's JMOL motion on that issue. Because FPS does not infringe the '444 patent, this court makes no determination as to that patent's validity. On claim 24 of the '505 patent, this court remands for further determination of whether FPS induced its customers to infringe under a correct reading of that claim. This court reverses, therefore, the district court's denial of JMOL on those issues and remands. Because substantial evidence supports the validity of properly construed claim 24, this court affirms that portion of the district court's judgment.

COSTS

Each party shall bear its own costs.

AFFIRMED-IN-PART, REVERSED-IN-PART, and REMANDED.

United States Court of Appeals
for the Federal Circuit

Nos. 01-1063, 01-1083

MOBA, B.V., STAALKAT, B.V.,
and FPS FOOD PROCESSING SYSTEMS, INC.,

Plaintiffs-Cross Appellants,

v.

DIAMOND AUTOMATION, INC.,

Defendant-Appellant.

RADER, Circuit Judge, concurring.

This case reveals a distinct institutional difference between the United States Court of Appeals for the Federal Circuit and the other twelve circuits. Whenever a Federal Circuit panel makes an error interpreting the patent code, every district court in the nation, and even every later Federal Circuit panel, is obliged to follow and perpetuate the error. Even the Supreme Court has difficulty identifying errors for correction because this court's national jurisdiction requires universal application of a mistake. This particular *Moba* case does not originate, but perpetuates such an error.

This mistake misapplies both the statutory law and the policy underlying United States patent law. Specifically, this court -- contrary to the statute and its own thirty-year body of case law -- applies the written description doctrine beyond the purpose for which the doctrine was created, namely priority protection. By making written description a free-standing disclosure

doctrine, this court produces numerous unintended and deleterious consequences.

I.

This case illustrates some of the unintended consequences of this judge-made doctrine. Each time a claim encompasses more than the preferred embodiment of the invention described in the specification, a defendant can assert that the patent is invalid for failure to describe the entire invention. Under the expanded written description doctrine, every claim construction argument could conceivably give rise to a validity challenge as well. In this case, for instance, FPS Food Processing Systems, Inc. ("FPS") argues if claim 24 of the '505 patent encompasses lifting eggs from a moving conveyor, as this court has determined, then claim 24 must be invalid because the '505 patent specification discloses no such conveyor mechanism. FPS's routine claim construction argument becomes a validity challenge under the non-statutory doctrine created in the *Lilly* case. *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed.Cir.1997). Fortunately, this court did not fall for FPS's argument.

Unfortunately, however, this court is not the only judicial actor that must deal with the unintended consequences of the *Lilly* doctrine. Because FPS argued that the specification did not disclose some feature of the claimed invention, the trial court had to take extensive testimony and ask a jury to speculate whether one of skill in the art would have known that the inventor "possessed" the full invention.

The trial court faced even greater confusion because FPS also asserted that the specification does not enable the claimed invention. Thus, the trial court asked this jury to determine whether one of skill in the art

would have been able to make and use the invention based on the patent's specification. Then the trial court asked to jury to look at the specification again to determine whether the inventor "possessed" the invention. Thus, this jury faced the cumbersome task of separating two doctrines for sufficiency of disclosure in a patent. Under Federal Circuit case law, FPS asked this jury to decide that the patent's disclosure can enable a skilled artisan to make and practice the entire invention, but still not inform that same artisan that the inventor was in possession of the invention. Puzzling. Moreover, the trial court had to give separate instructions and entertain separate witnesses on these inseparable patent rules to ensure full disclosure. The *Lilly* doctrine simply makes no sense in this context. In fact, outside its proper context of policing priority, it never makes sense but compounds the confusion, increases the chances for error, and augments the expense of the trial process.

II.

The Patent Act refers to "a written description" in 35 U.S.C. § 112, ¶ 1:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112, ¶ 1 (2000) (emphasis added). The language of § 112, ¶ 1 indicates that a patent will contain an adequate description if it provides enough

information to enable a person skilled in the art to make and use the invention. Any disclosure that enables one to make and use the invention also, by definition, also shows that the inventor was in possession of that full invention. Consequently, the erroneous written description requirement of *Lilly* case lacks both a statutory and a logical foundation.

This origins of the *Lilly* error have been explored at length in *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956 (Fed.Cir.2002) (rehearing en banc denied) (Rader, J., dissenting). Before 1967, written description was not a requirement separate from enablement. In *In re Ruschig,* this court's predecessor court created a new written description requirement for the sole purpose of enforcing priority issues. See *In re Ruschig*, 54 C.C.P.A. 1551, 379 F.2d 990, 154 USPQ 118 (1967). The court in *Ruschig* used § 112, ¶ 1 to reject later-drafted claims that encompassed subject matter not disclosed by the original claims and specification. A section of title 35, specifically § 132, directly prohibits the addition of new matter to a disclosure, either in the claims or the rest of the patent application. Nonetheless, this court's predecessor decided to use § 112 to prevent the addition of new matter to claims, rather than the specific provisions of § 132. This extra license with the language of title 35 did no harm because the Court of Customs and Patent Appeals recognized "that a rejection of an amended claim under § 132 is equivalent to a rejection under § 112, first paragraph." *In re Rasmussen*, 650 F.2d 1212, 1214, 211 USPQ 323, 325 (CCPA 1981).

Thus, from 1967 until 1997, the new matter doctrine, cloaked either in the specific language of § 132 or the innovative new reading of § 112, operated only to determine whether new claim language deserved priority back to the patent's original filing date. In other words,

> [w]hen the scope of a claim has been changed by amendment in such a way as to justify an assertion that it is directed to a different invention than was the original claim, it is proper to inquire whether the newly claimed subject matter was described in the patent application when filed as the invention of the patents. That is the essence of the so-called "description requirement" of § 112, first paragraph.

In re Wright, 866 F.2d 422, 424, 9 USPQ2d 1649, 1651 (Fed.Cir.1989) (emphasis added).

The new matter doctrines did not extend beyond priority issues because § 112 already supplies enablement to ensure that an inventor adequately describes the invention in exchange for temporary rights of exclusivity. For over thirty years, this court and its predecessor understood this basic principle of patent law and confined the written description doctrine to its purpose--policing priority of invention.[1]

In 1997, this court inexplicably wrote a new disclosure requirement, found nowhere in title 35, and attributed that new requirement to the written description doctrine. This new disclosure doctrine, applied so far only to biotechnology cases, requires a nucleotide-by-nucleotide recitation of the structure of a biotechnological invention. *Lilly*, 119 F.3d at 1567. Ironically, this court could have reached the same result in *Lilly* without making a new disclosure rule. Under the

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[1] *See generally Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 323 F.3d 956 (Fed.Cir.2002) (app.) (rehearing en banc denied) (Rader, J., dissenting) (quoting from every written description case, except Lilly, to show they only employed the doctrine to police priority).

statute's enablement rule, this court would have also determined that the invention was not sufficiently disclosed.[2] Instead, this court presumed to create another doctrine for sufficiency of disclosure. Although characterized as a written description doctrine, the *Lilly* rule cannot in fact trace its origin to the statute or to any prior case. See generally *Enzo*, 323 F.3d at 964-66.

Confusing the *Lilly* disclosure doctrine with the traditional written description doctrine, this court has stated that written description is separate from enablement. *See Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 65 USPQ2d 1385 (Fed.Cir.2003). Of course, this proposition is true with respect to the traditional written description/new matter doctrine. On the other hand, the only way to distinguish the *Lilly* rule from enablement is to construe *Lilly* as requiring more disclosure than necessary to enable one of skill in the art to make and use the invention, a "super-enablement" standard.[3] Interpreting *Lilly* in those terms, however,

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[2] U.S. Patent No. 4,652,525, at issue in *Lilly*, claimed priority to a parent application filed in 1977. The art of biotechnology was in its early stages in 1977. Under a proper enablement analysis, the simple disclosure of human insulin cDNA in the '525 patent would have failed to enable a person skilled in the art in 1977 to practice the claimed invention. Thus, the claims at issue would have been found invalid for lack of enablement.

[3] *See* Rai, Arti, ["Intellectual Property Rights in Biotechnology: Addressing New Technology"] 34 Wake Forest L. Rev. 827, 834-35 (Fall, 1999) ("the *Lilly* court used the written description requirement as a type of elevated enablement requirement."); Sampson, Margaret, "The Evolution of the Enablement and Written Description Requirements Under 35 U.S.C. § 112 in the Area of Biotechnology" 15 Berkley Tech. L.J. 1233, 1262 (Fall 2000) ("The primary argument against the Federal Circuit's heightened written description requirement for biotechnological invention is that ... it also 'reduces incentives to invest in innovation by depriving potential patentees of the opportunity to fully benefit from their research.' "); Mueller, Janice M., "The Evolving Application of the Written

(continued...)

presents severe consequences for biotechnology. For biotechnological inventions, *Lilly* purports to require the recitation, nucleotide by nucleotide, of the entire sequence of a new protein or composition. This non-statutory rule jeopardizes the validity of many inventions in biotechnology patented from the advent of the biotech era in the late 1970s. Before judicial creation of the *Lilly* rule in 1997, no inventor could have foreseen that the Federal Circuit would make a super-enablement rule. Without any way to redraft issued patents to accommodate the new rule, a large number of patents in the field of biotechnology face serious and unavoidable validity challenges.

Even if a drafter of biotechnological patents now knows the new law, compliance may tax a drafter beyond reasonable limits. A new protein or other DNA-related discovery may contain a chain of hundreds of amino acids. Many of the amino acids in the chain have substitutes that may take their place without altering the functional properties of the protein. Consequently, a "precise definition"[4] of the new protein, as required by *Lilly*, apparently requires tedious disclosure of thousands of potential permutations of the amino acid sequence that

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(continued...)

Description Requirement to Biotechnological Inventions" 13 Berkeley Tech. L.J. 615, 617 (Spring 1998) ("The *Lilly* decision establishes uniquely rigorous rules for the description of biotechnological subject matter that significantly contort written description doctrine away from its historic origins and policy grounding. The Lilly court elevate[s] written description to an effective 'super enablement' standard....").

[4] *See Eli Lilly*, 119 F.3d at 1566 (citing the "precise definition" standard of *Fiers v. Revel*, 984 F.2d 1164, 1171 (Fed.Cir.1993)).

all fall within a proper description of the protein's functions, properties, and DNA source.

This burdensome disclosure standard is tantamount to requiring disclosure, for a new software invention, of the entire source code, symbol by symbol, including all source code permutations that would not alter the function of the software. Ironically, the Federal Circuit has expressly rejected such a requirement for software inventions, but apparently enforces the requirement for biotechnology. *See e.g. N. Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 USPQ2d 1321 (Fed.Cir.1990) (overturning a finding that a patent did not adequately disclose "batching" software). This discrepancy emphasizes another problematic aspect of the *Lilly* doctrine. That is, it imposes a different disclosure standard for biotechnology than for computer technology. Despite the technology-neutral language of the Patent Act, the *Lilly* rule imposes technology-specific requirements.

Returning to the consequences of the *Lilly* rule for biotechnology, the burdens of this elevated "precise definition" standard unnecessarily increase the cost and time required to prepare and prosecute a biotechnology patent. Moreover, university inventors and non-corporate biotechnologists must endure significant expense and delay to acquire the sequence of a potential invention for disclosure under the *Lilly* rule. Sequencing is very expensive. Consequently, the *Lilly* rule can also have the unintended consequence of pricing non-corporate inventors out of the inventive market for biotechnology.

III.

Fortunately, the viability of the *Lilly* rule is on the decline. After *Enzo,* this court recognized "that *Eli Lilly* did not hold that all functional descriptions of genetic

material necessarily fails as a matter of law to meet the written description requirement, rather, the requirement may be satisfied if in the knowledge of the art the disclosed function is sufficiently correlated to a particular, known structure." *Amgen*, 314 F.3d at 1332, 1361 (dissent: "[T]he majority ... verges on confining *Eli Lilly* to its facts.").

In this case, as in *Enzo,* the court explained that the written description requirement is satisfied when "one of skill in the art would discern possession of the invention at the time of filing." Indeed, the *Enzo* court struggled to distinguish the so-called written description requirement from enablement. In reversing its original decision that deposits of biological material do not satisfy the written description requirement, the *Enzo* panel cited cases that found that such deposits satisfy the enablement requirement.[5] In other words, because *Lilly* did in fact compel the result of the original *Enzo* panel, the court on reconsideration had to concede that deposited material satisfies the *Lilly* standard if it meets the enablement standard.

With some understanding of the difficulties and redundancy of the *Lilly* rule, the Federal Circuit has begun to convert it into the enablement doctrine with a

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[5] *See Enzo*, 323 F.3d at 965 ("Whether reference to a deposit of a nucleotide sequence may adequately describe that sequence is an issue of first impression in this court. In light of the history of biological deposits for patent purposes [and] the goals of patent law ... we hold that reference in the specification to a deposit in a public depository ... constitutes an adequate description of the deposited material ... The practice of depositing biological material arose primarily to satisfy the enablement requirement of § 112, ¶ 1") (citing *In re Argoudelis*, 58 C.C.P.A. 769, 434 F.2d 1390, 168 USPQ 99, 100 (1970) (finding that making the biological material accessible to the public enabled the public to make and use the claimed antibiotics)).

different label. Unfortunately that leaves trial courts in the fix that the trial court faced in this case--presenting the jury two disclosure doctrines with apparently overlapping requirements. After all, to enable is to show possession, and to show possession is to enable.[6]

IV.

In sum, the *Lilly* rule is not just a mere one-time mistake. It defies over thirty years of case law. It finds no specific support in any statutory language. It creates a technology-specific rule in a technology- neutral statute. It distorts the statute's rules for adequate disclosure of inventions. It complicates biotechnology patent drafting to the point of near impossibility and invites invalidating mistakes. It prices non-corporate inventors out of some biotechnological invention markets. Last, but not least, it burdens both trial and appellate courts with unnecessary and confusing procedures in otherwise simple cases like this one.

Of course, this court should recognize and prevent, rather than ignore and create, mistakes in the interpretation of the Patent Act. In the rare event that this court makes this type of error, this Circuit has a unique obligation to swiftly pursue en banc correction. Unlike regional circuits, this court cannot rely on circuit splits to identify an issue for Supreme Court correction.

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[6] Patent scholars have encouraged this court to "resist the narcotic of the written description requirement and redirect [its] energies towards refining the enablement concept, particularly as it correlates to claim scope." Janis, Mark D., "On Courts Herding Cats: Contending with the 'Written Description' Requirement (and Other Unruly Patent Disclosure Doctrines)" 2 Wash. U.J.L. & Pol'y 55, 62, 107 (2000) ("the fault [for the confusion about the standard for patent disclosure] lies in the courts' hesitancy to explore the power of the enablement requirement.").

Moreover this court's jurisdiction over patents requires every trial court and this court itself to multiply this type of error until corrected. Accordingly, this court has a greater responsibility to pursue en banc correction of serious errors in interpretations of the Patent Act, such as the *Lilly* rule.

Alternatively, as indicated in Judge Bryson's concurring opinion, the problem in this area of the law may lie in the line of cases stemming from the *Ruschig* case. In that context, I agree that all priority issues can be more than adequately resolved under the new matter doctrine in 35 U.S.C. § 132.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Nos. 01-1063, 01-1083.

MOBA, B.V., STAALKAT, B.V.,
and FPS FOOD PROCESSING SYSTEMS, INC.,

Plaintiffs-Cross Appellants,

v.

DIAMOND AUTOMATION, INC.,

Defendant-Appellant.

BRYSON, Circuit Judge, concurring.

Having been a member of the panel that decided *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed.Cir.1997), I write to make a single point with regard to the court's decision in that case. *Lilly* has been criticized as departing from prior law by applying the written description requirement for a purpose other than to police priority. Setting aside the question whether the disclosure requirement imposed in *Lilly* was unduly stringent, a point that Judge Rader addresses in his concurring opinion, I do not believe that *Lilly* constituted a departure from prior law when it applied the written description requirement in a non-priority context.

In re Ruschig, 54 C.C.P.A. 1551, 379 F.2d 990, 154 USPQ 118 (1967), held that 35 U.S.C. § 112, paragraph 1, contains a written description requirement that is separate from the enablement requirement found in the same paragraph. That interpretation of the statute may or may not have been correct--there is something to be said for either side of that question of statutory

construction. But there is no question that *Ruschig* and subsequent decisions have held that written description and enablement are separate statutory requirements, and that written description is not simply a facet of enablement. Judge Rader acknowledges as much, but argues that as long as the *Ruschig* doctrine was confined to cases involving priority disputes, that reading of the statutory language worked no particular mischief, as it was simply redundant of the statutory prohibition against new matter in 35 U.S.C. § 132. The problem, as I see it, is that if it is correct to read section 112 as containing a separate written description requirement, it is difficult to find a principled basis for restricting that requirement to cases involving priority disputes. There is no language in section 112 that would support such a restriction, and I am unaware of any other basis for construing the statute in that fashion, unless we are simply to announce that the *Ruschig* cases will be tolerated, but must be limited to their facts. Put another way, if the *Ruschig* line of cases is sound as a matter of statutory construction, it is difficult to see why that construction does not apply equally in the *Lilly* non-priority context.

Perhaps the entire line of cases stemming from *Ruschig* is wrong, and perhaps we should at some point address that question en banc. I take no position on that issue at this juncture. I think it is worth pointing out, however, that the real question raised by Judge Rader's statutory analysis is not whether *Lilly* was an unwarranted departure from the *Ruschig* line of cases, but whether that entire line of cases is based on a fundamentally flawed construction of 35 U.S.C. § 112, paragraph 1.

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

MOBA, B.V., STAALKAT, B.V., and FPS FOOD PROCESSING SYSTEM, INC.

v.

DIAMOND AUTOMATION, INC.

Civil Action

No. 95-CV-2631

[FILED SEP 29, 2000]

MEMORANDUM AND ORDER

Moba, B.V., Staalkat, B.V., and FPS Food Processing Systems, Inc. (collectively "Plaintiffs" or "FPS") brought this action pursuant to 28 U.S.C. § § 2201 & 2202 against Diamond Automation, Inc. ("Diamond") seeking a declaratory judgment that United States Patents Nos. 4,569,'444 (the "'444 Patent"), 4,519,'494 (the "'444 Patent"), 4,'505,'373 (the "'373 Patent"), and 4,519,'505 (the "'505 Patent") are invalid and, in any event, not infringed by egg processing equipment manufactured by those companies. Diamond, which owns the four patents in suit, filed a counterclaim for a declaratory judgment that the patents are valid and for a permanent injunction barring Plaintiffs' manufacture, use or sale of the patented inventions.

This case was tried before a jury from January 28, 2000 to February 25, 2000. The jury returned a verdict that each of the patents is valid, but that they had not been infringed by Plaintiffs. Now before the Court is Diamond's Renewed Motion Pursuant to Federal Rule of Civil Procedure 50(b) for Judgment as a Matter of Law

that Plaintiffs Infringed the Asserted Claims of the Four Patents in Suit and That That Infringement was Willful. For the reasons which follow, Diamond's Motion is Denied.

I. FACTUAL AND PROCEDURAL HISTORY

A. Factual Background

Moba, B.V. and Staalkat, B.V. are Dutch companies which, among other things, manufacture and sell high speed egg processing machines. At the time this lawsuit was filed, Moba, B.V. and Staalkat, B.V. were both owned by FPS Food Processing Systems, B.V., which is also a Dutch Company. FPS Food Processing Systems, B.V. no longer owns Staalkat, B.V., but it still manufactures and sells the Staalkat Selecta, which has been accused of infringement in this case. FPS Food Processing Systems, Inc. is a Pennsylvania corporation which is the United States sales arm for the sale of the high speed egg processing machines which Diamond has accused of patent infringement. Diamond is a Michigan Corporation which also manufactures and sells high speed egg processing machines. FPS and Diamond are the only significant competitors in the manufacture and sale of high speed egg processing machines. Diamond has 90% of the market in the United States; FPS has a larger market share worldwide.

The high speed egg processing machines manufactured by Diamond and FPS sort batches of eggs into different categories by weight. Eggs are fed into the machines, washed and taken through a candling station where a high intensity light source is used to check the eggs for defects such as blood spots or cracks. The information is stored on a computer and used to separate out the defective eggs at a later point. The eggs are then weighed at weighing stations, and the weight of each egg

is stored on a computer. Each egg is then transferred to an overhead conveyor which carries rows of eggs from above and drops the eggs off at receiving stations, where they are packaged or otherwise disposed of.

In the early 1980s, Diamond developed a new technology for its egg processing machines for which it was awarded seven patents covering different aspects of the machines. It has accused two types of egg processing machines sold by FPS, the Moba Omnia (the "Omnia") and the Staalkat Selecta (of which three (3) versions were manufactured), of infringing on claims contained in four of these patents.

1. The '444 Patent

The '444 Patent describes and claims a method and apparatus for weighing each egg, storing the weight information in memory, and then dropping eggs of different weights from a main egg-carrying conveyor into different receiving stations, while at the same time varying the position from which the eggs are dropped from the conveyor according to the speed of the conveyor. ('444 Patent at col. 1, ln. 48--col. 2, ln. 20.) Diamond alleged that the Omnia and two of the Selectas (the Atlanta Selecta and the Petaluma Farms Selecta) infringe claims 33, 54 and 56 of the '444 Patent. Claim 33 is an apparatus claim for an apparatus which transfers eggs which are continuously conveyed by the overhead conveyor to the receiving stations where they are packaged according to their physical characteristics. ('444 Patent, Apparatus Claim 33, B2 Certificate at ¶ 1.) Claims 54 and 56 are method claims for transferring eggs from the overhead conveyor to the receiving stations. ('444 Patent, August 9, 1998 Reexamination Certificate at col. 6, ln. 28--ln. 51 and '444 Patent, November 26, 1991 Reexamination Certificate at col. 8, ln. 40--col. 9, ln. 7.)

The jury found that Diamond had not proven by a preponderance of the evidence that either the Omnia or the two Selecta machines infringed Claims 33, 54 or 56 of the '444 Patent (Tr. 2/25/00 p.m. at 7-10.)

2. The '505 Patent

The '505 Patent describes and claims a method and apparatus for advancing eggs from the candling station through the weighing stations. ('505 Patent at col. 2, ln. 3--col. 3, ln. 5.) Diamond alleged that claim 24 of the '505 Patent is infringed by the Omnia. Claim 24 is a method claim for advancing rows of eggs from the candling station through the weighing stations. ('505 Patent at col. 13, ln. 33--ln. 54.) The jury found that Diamond had not proven by a preponderance of the evidence that the Omnia infringes claim 24 of the '505 Patent. (Tr. 2/25/00 p.m. at 12.)

3. The '373 Patent

The '373 Patent describes and claims a method and apparatus for transferring eggs through a weighing station and then lifting the eggs up to an overhead conveyor. ('373 Patent at col. 2, ln. 20--col. 4, ln. 60.) Diamond alleged that claim 35 of the '373 Patent is infringed by the Omnia. Claim 35 is a method claim for transferring eggs through a weighing station at which the eggs are graded according to their size. ('373 Patent at col. 17, ln. 3--ln. 28.) The jury found that Diamond had not proven by a preponderance of the evidence that the Omnia infringes claim 35 of the '373 Patent. (Tr. 2/25/00 p.m. at 11.)

4. The '494 Patent

The '494 Patent describes and claims a method and apparatus for receiving eggs that are dropped from

an overhead conveyor using brushes to catch and cushion the eggs when they fall. ('494 Patent at col. 1, ln. 49-- col. 2, ln. 52.) Diamond alleged that all three types of Selectas (the Atlanta Selecta, the Petaluma Farms Selecta and the Modified Selecta) infringe claims 28 and 34 of the '494 Patent. Claim 28 is a method claim for transferring eggs delivered in a "spaced-apart aligned relationship" by the overhead conveyor to the receiving station. ('494 Patent at col. 12, ln. 9--ln. 40.) Claim 34 is an apparatus claim for the apparatus that delivers the eggs to the receiving station at which the eggs are packaged according to their individual physical characteristics. ('494 Patent at col. 13, ln. 1--ln. 10.) The jury found that Diamond had not proven by a preponderance of the evidence that the three Selectas infringe claims 28 and 34 of the '494 Patent. (Tr. 2/25/00 p.m. at 10-11.)

B. Relevant Procedural History

Diamond originally sued FPS for patent infringement in Michigan in 1994. The Michigan court did not have personal jurisdiction over FPS and that suit was dismissed. FPS filed this action against Diamond in this Court in 1995. In April 1998, after the close of discovery and extensive briefing by the parties, the Court held a two-day *Markman* hearing with respect to the interpretation of the claims at issue in the patents in suit.[7] On March 4, 1999, after giving the parties time to file additional briefs, the Court issued a Memorandum Opinion and Order setting forth its determination of the

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[7] In *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed.Cir.1995), the Court of Appeals for the Federal Circuit concluded that "the construction of patent claims, which define the scope of the patentee's rights under the patent, is a matter of law exclusively for the court." *Id.* at 970-71. Accordingly, courts hold *Markman* hearings to assist them in their claim interpretation duties prior to trial.

disputed claims in the patents in suit. After both sides moved for reconsideration of various portions of the March 4, 1999 Order, the Court issued a Supplemental Order on May 10, 1999, modifying some of the earlier rulings with respect to the '444 Patent. FPS moved for clarification of the May 10, 1999 Order and on December 10, 1999, the Court issued a Memorandum Opinion and Order modifying some parts of the May 10, 1999 Order regarding the disputed claims of the '444 Patent.

This case was tried before a jury from January 28, 2000 to February 25, 2000. On February 22, 2000, before the jury retired to consider its verdict, Diamond moved for entry of judgment as a matter of law, pursuant to Federal Rule of Civil Procedure 50(a), that FPS willfully infringed and induced infringement of the asserted claims of the '373, '444, '494 and '505 Patents and made, used or offered to sell the Atlanta Selecta in the United States. The Court denied that motion on March 6, 2000 and, on the same day, entered Judgment in favor of Diamond on the validity of the patents in suit and entered Judgment in favor of FPS on the counterclaims for infringement and willful infringement, inducing infringement, and making, using and offering to sell the Atlanta Selecta in the United States.

II. DISCUSSION

A. The Requirements For Judgment As A Matter Of Law

Diamond has filed a renewed motion for judgment as a matter of law that FPS infringed the asserted claims of the patents in suit and that its infringement was willful, that FPS induced its customers to infringe, and that FPS made, used or offered to sell the Atlanta Selecta in the United States. In deciding a motion for judgment as a matter of law in a patent case, the Court must

undertake a two step inquiry, the first step is construing the claims of the patents in suit. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995), *Johns Hopkins University v. Cellpro*, 931 F.Supp. 303, 312 (D.Del.1996). This Court determined the meaning and scope of the patent claims which Diamond asserted were infringed in the Markman Orders of March 4, 1999, May 10, 1999 and December 10, 1999. Neither Diamond nor FPS has challenged the Court's construction of the disputed claims, or asked for additional claim construction either during the trial of this matter or in connection with the instant motion.[8] Therefore, the Court finds that the construction of the disputed claims of the patents in suit, as set forth in the March 4, 1999, May 10, 1999 and December 10, 1999 Orders, was correct. The second step is to review the evidentiary basis for the jury's verdict. The Federal Circuit set forth the appropriate analysis in *Odetics, Inc. v. Storage Technology Corp.*, 185 F.3d 1259, 1269 (Fed.Cir.1999) (citations omitted):

> The grant of a motion for JMOL is permissible only where there is no legally sufficient basis for a jury to find for the nonmoving party. In order to determine whether a legally sufficient basis in fact exists, the trial court must consider all the evidence in a light most favorable to the non-mover, must draw reasonable inferences favorable to the non-mover, must not determine the credibility of witnesses, and must not substitute its

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[8] Diamond states in its Reply Memorandum that "there would be nothing unusual about Diamond asking the Court to interpret disputed claim language for the first time at this juncture, but that is not what Diamond is doing." (Diamond's Reply Memorandum at 5.)

> choice for that of the jury. If, after this analysis, substantial evidence, being that minimum quantum of evidence from which a jury might reasonably afford relief, exists to support the jury's verdict, then the motion for JMOL must be denied

Diamond claims that the accused machines infringe on the patents in suit both literally and by the doctrine of equivalents. A patent claim is literally infringed if the accused device "contains every limitation in the asserted claims. If even one limitation is missing or not met as claimed, there is no literal infringement." *WMS Gaming, Inc. v. International Game Technology,* 184 F.3d 1339, 1350 (Fed.Cir.1999). A patent claim is infringed by the doctrine of equivalents if the accused device:

> contains elements identical or equivalent to each claimed element of the patented invention.... An analysis of the role played by each element in the context of the specific patent claim will thus inform the inquiry as to whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different from the claimed element.

Warner-Jenkinson Co. v. Hilton Davis Chemical, 520 U.S. 17, 40 (1997). FPS' witnesses testified that none of the patents in suit is infringed because the accused machines do not contain certain limitations in the asserted claims and that the resulting differences between the accused machines and the asserted claims are sufficiently substantial that they are not equivalent in function, way or result.

B. The '444 Patent

At trial, Diamond presented evidence, through the testimony of its fact and expert witness John Chris McEvoy,[9] that the Omnia, Atlanta Selecta and Petaluma Farms Selecta include all of the limitations of claims 33, 54 and 56 of the '444 Patent., thereby infringing the that patent both literally and by the doctrine of equivalents. (Tr. 2/8/00 p.m. at 34-65, 2/9/00 a.m. at 4-38.) FPS presented evidence, through its fact witness Paul Buisman[10] and its expert witness Dr. James Kirk,[11] that those machines do not infringe the asserted claims because the Omnia and the limitations of those claims. (Tr. 2/14/00 a.m. at 63-91, Tr. 2/15/00 a..m. at 33-58, 2/18/00 a.m. at 47-54.) Diamond argues that it is entitled to the entry of judgment as a matter of law because FPS' arguments and evidence that the "predetermined sequence" and the "varying the release position" limitations are not met in the accused machines were based on an incorrect application of the claims as construed by the Court. (Memorandum in Support of

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[9] Mr. McEvoy has a BSEE in electrical engineering and was employed by Diamond from 1967 until his retirement in 1994. At the time of his retirement from Diamond, he was the Vice President of Engineering. Mr. McEvoy was involved with the development of Diamond's egg processing machinery, including the four patents in suit.

[10] Mr. Buisman is employed by Moba, B.V. in Holland as a product manager and worked on the design and development of the Omnia. He attended college in Holland and received the Dutch equivalent of a bachelor of science degree in electrical engineering.

[11] Dr. Kirk holds a Ph.D. in mechanical engineering, is a professor emeritus of mechanical engineering at the University of Maryland, and is the author of 115 articles and several books on mechanical engineering and accident reconstruction.

Renewed Motion Pursuant to Fed. R. Civ. P. 50, "Diamond's Memorandum," at 11.)

1. Predetermined Sequence

The term "predetermined sequence" appears in three elements of Claim 33. The second element of claim 33 describes an apparatus that selectively releases eggs having the same physical characteristics from the overhead conveyor "according to a drop trajectory dependent on conveyor speed in a predetermined sequence determined by said stored physical characteristics into a receiving means at said receiving station." ('444 Patent, Apparatus Claim 33, B2 Certificate at ¶3.) The sixth element of claim 33 describes an apparatus which selectively actuates the releasable egg-engaging means of the overhead conveyor in order to release the eggs carried by the overhead conveyor in "said predetermined sequence determined by said stored physical characteristics..." ('444 Patent, Apparatus Claim 33, B2 Certificate at ¶7.) The eighth element of claim 33 describes an apparatus which releases the selected eggs carried by the overhead conveyor "in said predetermined sequence at said receiving station." ('444 Patent, Apparatus Claim 33, B2 Certificate at ¶9.) This Court ordered that the phrase "predetermined sequence" in claim 33 shall be construed as:

> the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the eggs' particular grade, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released.

(Order dated March 4, 1999 at ¶I.A.1.)

The term "predetermined sequence" appears in two steps of method claim 56. Step four of claim 56 describes a method for selectively releasing the eggs "by moving a releasing means from above into the path of the conveyed eggs in a predetermined sequence based on the stored physical characteristics of the eggs..." ('444 Patent, November 26, 1991 Reexamination Certificate at col. 8, ln. 55 - ln. 58.) Step five of claim 56 describes a method for "selectively releasing the eggs successively from the conveyor means at the receiving station into the selected receiving means in accordance with the predetermined sequence..." ('444 Patent, November 26, 1991 Reexamination Certificate at col. 9, ln. 1 – ln. 7.) This Court ordered that the phrase "predetermined sequence" in claim 56 shall be construed as:

> the order in which eggs are released from the egg-carrying conveyor so that each released egg not only drops into the receiving station for the egg's particular grade but also effects the equal distribution of released eggs across the width of the receiving station, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released.

(Order dated March 4, 1999, at ¶I.A.2.)

The term "predetermined sequence" appears in one step of method claim 54. Step two of claim 54 describes a method for "releasing eggs having the same physical characteristics from said first conveyor means in a predetermined sequence at said receiving station." ('444 Patent, August 9, 1998 Reexamination Certificate at col. 6, ln. 36 – ln. 38.) The Court ordered that the phrase "predetermined sequence" in claim 54 shall be construed as:

> the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being defined before the eggs arrive at the locations from which they were released.

(Order dated March 4, 1999 at ¶I.A.4.)

Diamond argues that FPS' evidence concerning this limitation depends on an incorrect application of the Court's construction of the phrase "predetermined sequence" and, consequently, a reasonable jury could not have found that the accused machines do not include these limitations. Diamond is attempting to convert what is properly an issue of fact, i.e., whether the accused machines contain the disputed limitations of the claims as previously construed by the Court, into an issue of law. However, Diamond has not cited the Court to any instance in which FPS presented evidence or argument to the jury which was inconsistent with the Court's construction of the disputed limitations. To the contrary, FPS referred repeatedly to the *Markman* Orders at trial and its expert, Dr. Kirk, testified that he utilized the Court's construction of these terms in reaching his opinion. (Tr. 2/15/00 a.m. at 32 and 48.)

Diamond argues that FPS established at trial only that the accused machines have a bypass principle which allows them to bypass, or alter, their "predetermined sequence." (Diamond's Memorandum at 12-15.) Diamond also argues that, because FPS' witnesses testified at trial that the decision as to whether any given egg would be released at a packer is made within milliseconds of the egg's release, that the accused machines release eggs in a "predetermined sequence" and, consequently, any evidence or argument made to the contrary must have

been based on an interpretation of the claims that was not adopted by the Court. (Diamond's Memorandum at 15-16.)

Diamond's argument misconstrues FPS' evidence. FPS did not admit that the accused machines release eggs in a "predetermined sequence" as that phrase was interpreted by the Court. FPS' witnesses testified that the accused machines operate without predetermining the order in which eggs will be released. FPS' witnesses described for the jury in some detail the process by which eggs are released from the overhead conveyor in the accused machines: the accused machines contain multiple potential receiving stations for the eggs from which the eggs are conveyed to packers at which they are packaged by grade. Each receiving station has a computer which uses the information concerning the physical characteristics of each egg, which information was stored when the egg was washed, candled and weighed, as well as information concerning the availability of space for additional eggs in the packer for that receiving station, to determine whether a particular egg will be released from the overhead conveyor at the location of that receiving station. The computer makes the release decision for each egg as that egg arrives at the location at which the egg would be released, not before. If an egg is not released at the first receiving station, it is conveyed to the next receiving station where the decision making process is repeated. (Tr. 2/14/00 a.m. at 63-72, 2/15/00 a.m. at 33-44, 2/18/00 a.m. at 47-54.)

In presenting its evidence, FPS did not offer any testimony or argument that misapplied the Court's definitions of the phrase "predetermined sequence." FPS' expert witness, Dr. Kirk, testified that the manner by which eggs are released in the accused machines is not a "predetermined sequence" as defined by the Court because the decision to release an egg from the overhead

conveyor is not made until the egg reaches the location at which it is released. He further testified that this is not equivalent to releasing the eggs in a "predetermined sequence" and, therefore, the Omnia and the Atlanta and Petaluma Selectas do not infringe on the '444 Patent either literally or under the doctrine of equivalents (Tr. 2/15/00 a .m. at 44-45.)

FPS made its presentation to the jury regarding this issue through the lengthy testimony of Mr. Buisman and Dr. Kirk, the patents in suit, the *Markman* orders, and diagrams, drawings, slides and videotapes of the accused machines which allowed the jury to determine for itself whether the accused machines release eggs in a "predetermined sequence" as that limitation was defined by the Court. Considering all of the evidence before the jury with respect to the "predetermined sequence" limitation in the light most favorable to FPS, drawing all reasonable inferences favorable to FPS, without determining the credibility of witnesses, and without substituting its choice for that of the jury, the Court finds that there was substantial evidence presented at trial upon which the jury could find that the accused machines do not infringe claims 33, 54 and 56 of the '444 Patent because they do not drop eggs in a "predetermined sequence" as that phrase was construed by the Court. *Odetics, Inc., 185 F.3d at 1269.* Diamond, therefore, is not entitled to entry of judgment as a matter of law that the accused machines infringe claims 33, 54 and 56 of the '444 Patent.

2. Varying The Release Position

The "varying the release position" limitation concerns the position of the movable release frame which directs the overhead conveyor to release the eggs so that they drop into the receiving station. This limitation appears in the fourth element of claim 33 which describes

an apparatus for varying the position of the releasing means according to the speed of the overhead conveyor. ('444 Patent, Apparatus Claim 33, B2 Certificate at ¶ 3.) The Court ordered that this element of claim 33 shall be construed as:

a. a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid; or

b. a structural equivalent of paragraph D.2.a. which performs the following two functions:

(1) varying the position of the frame with respect to the receiving station; and

(2) varying the frame position according to the speed of the main egg- carrying conveyor; and

c. requires that there is a connection between the frame and the position-varying means drive mechanism and that the location at which the frame must be positioned is determined by the speed of the conveyor.

(December 10, 1999 Order at ¶ D.2.) The "varying the release position" limitation also appears in the third step of claim 54 and the fourth step of claim 56. Claim 54 teaches a method of: "varying the position with respect to said receiving station at which said eggs are released according to the speed at which said eggs are conveyed to said receiving station by said first conveyor means." ('444 Patent, August 9, 1998 Reexamination Certificate at col. 6, ln. 39 - ln. 42.) In claim 56, the "varying the release position" limitation is part of the description of the

method for moving the releasing means into the path of the eggs being conveyed on the overhead conveyor so that the eggs are dropped in a trajectory which will ensure that they fall into the correct receiving station. ('444 Patent, November 26, 1991 Reexamination Certificate at col. 8, ln. 55 - ln. 68.) The Court ordered that this phrase shall be construed to mean the following in interpreting claims 54 and 56:

a. varying the position of the frame with respect to the receiving station; and
b. varying the frame position according to the speed of the main egg-carrying conveyor; and
c. requires that the location at which the frame must be positioned is determined by the speed of the conveyor.

(December 10, 1999 Order at ¶ ¶ E.2. and E.3.)

FPS presented evidence at trial that the accused machines do not infringe on these claims because the position of the releasing means on the accused machines is set independently of the actual speed of the conveyer, and is not dependent upon the actual speed of the conveyor. (Tr. 2/14/00 p.m. at 72-77.) Mr. Buisman testified that the '444 Patent teaches that changes in the speed of the conveyor automatically change the position of the releasing means, which he termed "feedback." (Tr. 2/14/00 a.m. at 75, 2/14/00 p.m. at 77-78). Mr. Buisman further testified that the accused machines do not infringe these claims because there is no feedback in the accused machines; in the Omnia and the accused Selectas the position of the release frame and the conveyor speed are set separately using two different signals. (Tr. 2/14/00 p.m. at 5.) Dr. Kirk opined that this difference in

apparatus and method was a fundamental difference from the '444 Patent and, therefore, because of these differences, the accused machines do not infringe the disputed claims of the '444 Patent either literally or under the doctrine of the equivalents. (Tr. 2/14/00 p.m. at 78-80.)

Diamond argues that the position taken at trial by FPS with regard to the "varying the release position limitation" was contrary to the Court's rulings on the construction of this phrase and, therefore, no reasonable jury could have found that this limitation is not literally met in the accused machines. (Diamond's Memorandum at 17-21.) Diamond misconstrues FPS' position as an argument that the accused machines do not infringe because they vary the release position just like Scollard and the '444 patent requires more than Scollard.[12] This argument is a red herring. FPS' presentation with respect to Scollard concerned the validity of the '444

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[12] "Scollard" refers to an earlier patent relating to an egg handling, sorting and packing apparatus that operates at a fixed speed and teaches as a feature "controlling the discharge point (release point) of a conveyor transported article relative to a receiver to compensate for changes in the article trajectory resulting from the traveling speed of the conveyor." (Reexam. Cont. No. 90/000,213, Order Granting Request for Reexamination paper No. 8. at 2, June 6, 1987.) More specifically, in Scollard 579, the position of the egg release point can be adjusted by an operator manually rotating a handwheel which, by means of mechanical links, simultaneously adjusts the speed of the conveyor motor and the position at which eggs were released. *See* Scollard '579, col. 7, ln. 72--col. 8, ln. 63. Diamond's patent application for the '444 Patent was initially denied because it was the same as Scollard in this area. Diamond had to add features to Scollard in order to obtain approval of its patent application.

Patent (i.e., whether that patent was invalid because it was the same as Scollard), not infringement. FPS' witnesses did not take the position that there was no infringement because the accused machines are just like Scollard. Diamond's argument ignores the testimony of Mr. Buisman and Dr. Kirk that the lack of feedback is a fundamental difference between the accused machines and the "varying the release position" limitation taught by claims 33, 54 and 56 of the '444 Patent. Their testimony did not misapply the Court's construction of the "varying the release position" limitation.

In reaching its verdict, the jury could rely on the extensive and detailed testimony of FPS' witnesses, the patents in suit, the *Markman* orders, and diagrams, drawings, slides and videotapes of the accused machines to see for itself how the accused machines vary the position of the release mechanism. Considering all of the evidence before the jury with respect to the "varying the release position limitation" in the light most favorable to FPS, drawing all reasonable inferences favorable to FPS, without determining the credibility of witnesses, and without substituting its choice for that of the jury, the Court finds that there was substantial evidence presented at trial upon which the jury could find that the accused machines do not infringe claims 33, 54 and 56 of the '444 Patent because they do not meet the "varying the release position limitation" as that limitation was construed by the Court. *Odetics, Inc., 185 F.3d at 1269.* Diamond, therefore, is not entitled to entry of judgment as a matter of law that the accused machines infringe claims 33, 54 and 56 of the '444 Patent.

C. The '505 Patent

At trial, Diamond presented evidence through the testimony of Mr. McEvoy that the Omnia includes all of the limitations of claim 24 of the '505 Patent, thereby

infringing that patent literally and by the doctrine of equivalents. (Tr. 2/8/00 p.m. at 23-34.) FPS presented evidence through Dr. Kirk that the Omnia does not infringe the limitations of claim 24 of the '505 Patent because two of the guiding steps contained in that limitation are not present in the Omnia. (Tr. 2/15/00 p.m. at 32-42.) Diamond argues that it is entitled to judgment as a matter of law because FPS' position that the "guiding steps" limitation is not met in the Omnia was "based on an erroneous incorrect interpretation of the claims, and a complete mischaracterization of the *Markman* rulings by this Court" and, therefore, a reasonable jury could not have found that claim 24 is not infringed by the Omnia. (Diamond's Memorandum at 23.)

The "guiding steps" limitation of claim 24 comprises the fourth and fifth steps of that claim:

> guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations,
>
> guiding further eggs to said plurality of holding stations...

('505 Patent at col. 13, ln. 44 - ln. 51.) The Court ordered that the "guiding steps" limitation in claim 24 shall be construed as:

1. "carrying eggs to holding stations;"
2. "carrying eggs from the holding stations to the spaced-apart locations;" and

3. "carrying more eggs to the holding stations."

(March 4, 1999 Order at ¶ IV.C.) Neither party has challenged the Court's construction of this limitation.

Dr. Kirk testified at trial that the Omnia does not infringe the '505 Patent because it uses a continuously moving conveyor belt to move the eggs, thus performing the actions described in two and three above simultaneously, and does not perform three separate steps. (Tr. 2/15/00 p.m. at 32-42.) Dr. Kirk used the patents in suit, the *Markman* Orders, diagrams and animations to demonstrate to the jury that the way in which the Omnia works and the function of the Omnia are different from that claimed by the '505 Patent and that the Omnia does not infringe claim 24 of the '505 Patent either literally or by the doctrine of equivalents. (Tr. 2/15/00 p.m. at 32-42.)

Diamond asserts that it is entitled to judgment as a matter of law because FPS' evidence was based on a construction of the "guiding steps" limitation which had already been rejected by the Court. Diamond claims that the Court rejected FPS' argument during the *Markman* proceedings. (Diamond's Memorandum at 26.) Diamond's argument misinterprets the Court's earlier finding. During the *Markman* proceedings, the Court rejected FPS' request that the Court "find specifically that travel of eggs between the 'holding stations' and the 'spaced-apart locations' is not via conveyor belt or other physically connected pathway but rather by 'picking and placing" ' and FPS' argument that "use of the term 'holding station' requires that the eggs be held or temporarily stored at the holding station after each guiding step." (Memorandum Opinion dated March 4, 1999 at 23-24.) The Court did not consider, and did not reject, FPS' argument that the Omnia does not infringe

because it performs two of the actions in the "guiding steps" limitation simultaneously rather than in three separate steps. FPS' position was not, therefore, based on an erroneous application of the Court's construction of the "guiding steps" limitation.

In reaching its verdict, the jury could rely on the testimony of Dr. Kirk, the patents in suit, the *Markman* orders, and the illustrations and animations used by Dr. Kirk to determine if the Omnia meets the "guiding steps" limitation. Considering all of the evidence before the jury with respect to the "guiding steps" limitation in the light most favorable to FPS, drawing all reasonable inferences favorable to FPS, without determining the credibility of witnesses, and without substituting its choice for that of the jury, the Court finds that there was substantial evidence presented at trial upon which the jury could find that the Omnia does not contain "guiding steps" as that phrase was construed by the Court and that it, therefore, does not infringe claim 24 of the '505 Patent either literally or by the doctrine of equivalents. *Odetics, Inc., 185 F.3d at 1269.* Diamond is not, therefore, entitled to entry of judgment as a matter of law that the Omnia infringes claim 24 of the '505 Patent.

D. The '373 Patent

Diamond's witness, Mr. McEvoy, testified at trial that the Omnia includes all of the limitations of claim 35 of the '373 Patent, thereby infringing that patent literally and by the doctrine of equivalents. (Tr. 2/8/00 p.m. at 9-23.) FPS' witnesses, Mr. Buisman and Dr. Kirk, testified that the Omnia did not infringe the limitations of claim 35 of the '373 Patent because the Omnia does not meet the "reciprocal movement" limitation of that claim. (Tr. 2/11/00 a.m. at 47-51, 2/15/00 p.m. at 13-31.) Diamond argues that it is entitled to judgment as a matter of law because FPS' position that the Omnia does not meet the

"reciprocal movement" limitation is based on an incorrect interpretation of claim 35 that was rejected by the Court. (Diamond's Memorandum at 31-32.)

During the *Markman* proceedings, the parties asked the Court to construe steps five and six of claim 35: "lifting the eggs from the holding station from the underside thereof and rotating the eggs upwardly with respect thereto; reciprocally moving the lifted eggs away from the holding station." ('373 Patent at col. 17, ln. 13 - ln. 17.) The Court construed the term "rotating the eggs upwardly" as "turning about an axis; the axis may be fixed or moving" and construed "reciprocally moving the lifted eggs" as "moving forward and backward alternately, usually in a straight line." (March 4, 1999 Order at III.A. and B.) Neither party has challenged the Court's construction of these phrases.

Dr. Kirk testified that the Omnia does not meet the reciprocal movement limitation because the Omnia does not reciprocally move the eggs. (Tr. 2/15/00 p.m. at 13-31.) Dr. Kirk also testified that the Omnia does not meet this limitation because claim 35 requires a lifting step and a separate reciprocally moving step and, while the Omnia does rotate the eggs upwardly when lifting them, it does not have a separate step wherein the eggs are reciprocally moved. (Tr. 2/15/00 p.m. at 13-31.) Dr. Kirk also testified that the "reciprocal movement" limitation in claim 35 requires the lifting mechanism to be moved out of the plane of the eggs to prevent the lifting mechanism from hitting other eggs as it moves reciprocally. (Tr. 2/15/00 p.m. at 29-30.) He further testified that the design of the Omnia does not require out of plane movement and that the lifting mechanism in the Omnia always stays in the same plane because its lifting movement, unlike the movement taught by claim 35, does not hit other eggs in the same plane. (Tr. 2/15/00 p.m. at 30.) Mr. Buisman also testified that the Omnia

does not have a "reciprocal movement step." Both Dr. Kirk and Mr. Buisman demonstrated for the jury the manner in which the Omnia lifts eggs away from the holding station. Dr. Kirk's demonstration utilized animation; Mr. Buisman's demonstration used a model of the Omnia's lifting mechanism. (Tr. 2/15/00 p.m. at 15-29, Tr. 2/11/00 a.m. at 44-51.)

Diamond argues that FPS' evidence was based on a construction of "reciprocal movement" that was rejected by the Court in the March 4, 1999 Memorandum Opinion and, therefore, no reasonable jury could have found that the Omnia does not infringe on this claim. (Diamond's Memorandum at 32.) Diamond is in error. During the *Markman* proceedings, FPS asked the Court to find that the proper interpretation of claim 35 requires that the rotational movement be perpendicular to the reciprocal movement, as described in the preferred embodiment of the '373 Patent. The Court recognized that "particular embodiments and examples appearing in the specification will not generally be read into the claims" and rejected FPS' request. (Memorandum Opinion dated March 4, 1999 at 19-20.) The parties did not ask the Court to consider whether claim 35 requires that the rotational and reciprocal movement steps occur separately. Diamond also makes the argument that FPS' position misapplies the Court's interpretation of this limitation because the Court construed claim 35 to teach that the reciprocal movement limitation applies to the lift mechanism and not to the eggs. Diamond is in error. Neither the March 4, 1999 Order nor the March 4, 1999 Memorandum Opinion construe claim 35 in this manner and neither party has requested that claim 35 be construed in this manner. FPS' position, therefore, does not misapply the Court's construction of the disputed limitations of claim 35.

In reaching its verdict, the jury could rely on the extensive and detailed testimony of FPS' witnesses, the patents in suit, the *Markman* orders, the animation of the Omnia's lifting mechanism, and the model of the Omnia's lifting mechanism to determine whether the lifting mechanism used by the Omnia met the reciprocal movement limitation of claim 35 of the '373 Patent. Considering all of the evidence before the jury with respect to the "reciprocal movement" limitation in the light most favorable to FPS, drawing all reasonable inferences favorable to FPS, without determining the credibility of witnesses, and without substituting its choice for that of the jury, the Court finds that there was substantial evidence presented at trial upon which the jury could find that the Omnia does not meet the "reciprocal movement" limitation of claim 35 of the '373 Patent and that it did not infringe the '373 Patent either literally or by the doctrine of equivalents. *Odetics, Inc.*, 185 F.3d at 1269. Therefore, Diamond is not entitled to entry of judgment as a matter of law that the Omnia infringes claim 35 of the "373 Patent.

E. The '494 Patent

Diamond presented evidence at trial through the testimony of Mr. McEvoy that the three versions of the Selecta include all of the limitations of claims 28 and 34 of the '494 Patent, thereby infringing that patent literally and by the doctrine of equivalents. (Tr. 2/9/00 a.m. at 38-54, 2/9/00 p.m. at 4-9.) FPS presented evidence through Mr. Buisman and Dr. Kirk that the Selectas do not infringe the limitations of claims 28 and 34 of the '494 Patent because the Selectas do not meet the "predetermined sequence" and "downwardly and away" limitations of those claims. (Tr. 2/11/00 a.m. at 53-61, 2/15/00 a.m. at 56-73 and 2/15/00 p.m. at 13-31.) Diamond argues that it is entitled to judgment as a matter of law because FPS' arguments and evidence that

the Selecta does not meet the "predetermined sequence" and "downwardly and away" limitations of these claims are based on erroneous interpretations of the claims. (Diamond's Memorandum at 38.)

The "predetermined sequence" and "downwardly and away" limitations appear in steps two, five and six of claim 28 and teach the manner in which the eggs are moved from the overhead conveyor into the packers: "releasing eggs from said first conveyor means at the receiving station in accordance with a predetermined requirement... rotating the receiving means downwardly and away from said first conveyor means to urge the received eggs downwardly, guiding said eggs received in said receiving means downwardly and away from said receiving means." ('494 Patent at col. 12, ln.14 - ln. 16 and ln. 26 - ln.31.) These terms also appear in elements two, three and four of claim 34 and claim the apparatus by which the eggs are moved from the receiving stations to the packers. Element two describes a receiving means below the first conveyor means which is "adapted for movement downwardly and away from said first conveyor means...." ('494 Patent at col. 13, ln. 20--col. 14, ln. 4.) Element 3 describes a guide means located below the first conveyor means and receiving means for guiding the eggs downwardly and away from the receiving means. ('494 Patent at col. 14, ln. 5 - ln. 8.) Element four describes a means for selectively actuating the egg-engaging means of the overhead conveyor to release the eggs in a predetermined sequence into the receiving means, where the eggs are moved away from the overhead conveyor. ('494 Patent at col. 14, ln. 9--ln. 18.) The Court ordered that the phrase "predetermined sequence," as used in the '494 Patent, be defined as follows:

> the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving

> station for the egg's particular grade, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released.

(March 4, 1999 Order at ¶ II.A.) The Court ordered that the phrase "downwardly and away" be defined as follows:

> 1. the receiving means must be rotated downwardly (i.e., toward the ground) and be rotated away from the main egg-carrying conveyor from which the eggs are released.
> 2. the eggs which are received by the receiving means must be guided downwardly (i.e., toward the ground) and also be guided away from the receiving means.

(March 4, 1999 Order at ¶ II.C.) Neither party has challenged the Court's construction of these phrases.

Dr. Kirk explained to the jury that the receiving means in the Selectas is an endless linear brush conveyor and used a diagram, photos and video of the conveyor to demonstrate the manner in which eggs are dropped from the overhead conveyor onto the bristles of the linear brush conveyor and are then pushed, or urged, by the bristles up the upwardly slanting side of a comb and over the top of the comb, after which the eggs roll down a slight decline onto a second conveyor. (Tr. 2/15/00 a.m. at 60-73.)

Diamond argues that FPS' evidence that the Selectas do not meet the "predetermined sequence" and "downwardly and away" limitations was based on erroneous claim interpretations and, when the proper

claim interpretations are used, the only remaining evidence on this issue is its own. (Diamond's Memorandum at 38.) To support its position regarding the "predetermined sequence" limitation, Diamond repeats the arguments it made in connection with the "predetermined sequence" limitation of '444 Patent. Its argument fails for the same reasons its argument relating to the "444 Patent failed. The Court, therefore, finds that FPS' evidence with respect to the "predetermined sequence" limitations of the '494 Patent was not based upon an erroneous application of the Court's construction of that phrase.

Diamond also argues that the Court rejected FPS' position that the Selectas do not meet the "downwardly and away" limitation during the *Markman* proceedings and that the Selectas actually do meet that limitation because the eggs roll downwardly after they are urged upward by the receiving means. (Diamond's Memorandum at 39-40.) Diamond is in error. During the *Markman* proceedings, FPS argued that the "downwardly and away" limitation requires that the eggs should be moved to a level below the receiving means. (March 4, 1999 Memorandum Opinion at 16.) The position taken by FPS at trial is not the same as the argument which the Court rejected during the *Markman* proceedings. FPS' evidence was, therefore, not based upon claim interpretations which have already been rejected by the Court.

In reaching its verdict, the jury could rely on the testimony of Mr. Buisman and Dr. Kirk, the patents in suit, the *Markman* orders, and the diagrams, photos and videos demonstrated by Mr. Buisman and Dr. Kirk to determine if the Selectas contain the "predetermined sequence" and "downwardly and away" limitations of claims 28 and 34 of the '494 Patent. Considering all of the evidence before the jury with respect to the

"predetermined sequence" and "downwardly and away" limitations in the light most favorable to FPS, drawing all reasonable inferences favorable to FPS, without determining the credibility of witnesses, and without substituting its choice for that of the jury, the Court finds that there was substantial evidence presented at trial upon which the jury could find that the Selectas did not meet the "predetermined sequence" and "downwardly and away" limitations as those limitations were construed by the Court and that the Selectas therefore, did not infringe claims 28 and 35 of the '494 Patent either literally or by the doctrine of equivalents. *Odetics, Inc., 185 F.3d at 1269.* Diamond, therefore, is not entitled to entry of judgment as a matter of law that the Selectas infringe claims 28 and 34 of the '494.

F. Diamond Is Not Entitled To Entry Of Judgment As A Matter Of Law On Its Remaining Claims

1. Making, Using, And Offering To Sell The Atlanta Selecta In The United States

In addition to its counterclaims for infringement of the patents in suit, Diamond also asserted a counterclaim against FPS for making, using or offering to sell the Atlanta Selecta in the United States without its authority pursuant to 35 U.S.C. § 271(a).[13] The jury found for FPS on this claim. (Tr. 2/25/00 p.m. at 8.) Diamond contends that the Court committed legal error in its instructions to the jury on this issue and, as a consequence, it is entitled to judgment as a matter of law that FPS is liable to it for

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[13] The patent laws were amended effective January 1, 1996 to make "offering to sell" any patented invention an act of patent infringement. 35 U.S.C. § 271(a). Diamond contends that FPS offered to sell the Atlanta Selecta in the United States during the first half of 1996, after the amendment came into effect.

the making, using and selling of the Atlanta Selecta in the United States.

The Court need not reach Diamond's argument because Diamond could not be entitled to judgment as a matter of law on this counterclaim. 35 U.S.C. § 271(a) states that: "whoever without authority makes, uses, offers to sell, or sells any patented invention within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent." It is undeniable that FPS cannot be held liable for making, using or offering to sell the Atlanta Selecta in the United States unless the Atlanta Selecta infringed on at least one of the patents in suit. The jury found that the Atlanta Selecta did not infringe on any of the patents in suit and, consequently, could not have found that FPS is liable to Diamond for making, using or offering to sell the Atlanta Selecta in the United States. Therefore, Diamond is not entitled to entry of judgment as a matter of law that FPS infringed its patents by making, using, and offering to sell the Atlanta Selecta in the United States.

2. Inducement Of Infringement

Diamond also brought a counterclaim against FPS accusing it of inducing Diamond's customers to directly infringe the patents in suit in violation of 35 U.S.C. § 271(b) which states that "whoever actively induces infringement of a patent shall be liable as an infringer." Diamond claims that FPS did so by, after selling an infringing machine, going to the customer's site to install the machine, operate the machine and train the customer to operate the machine. (Diamond's Memorandum at 56-57.) Diamond claims that it is entitled to judgment as a matter of law on this issue because no reasonable jury

could have found that FPS did not induce infringement of the patents in suit. (Diamond's Memorandum at 56.) However, since the jury found that none of the machines sold by FPS infringe any of the patents in suit, the jury could not have found that FPS induced infringement. Therefore, Diamond is not entitled to entry of judgment as a matter of law that FPS induced infringement.

3. Willful Infringement

Diamond also asked the jury to find that FPS willfully infringed the patents in suit so that it could seek an award of increased damages. Pursuant to 35 U.S.C. § 284, the Court may award up to three times the amount of damages found by the jury if there is a finding that the infringement was willful. *Tenax Corp. v. Tensar Corp.,* 19 U.S.P.Q.2d 1881, 1891 (D.Md.1991). Diamond argues that it is entitled to judgment as a matter of law on this issue because no reasonable jury could have found that FPS did not willfully infringe the patents in suit. (Diamond's Memorandum at 57.) However, since the jury had sufficient evidence on which to base its finding that none of the patents in suit were infringed, it could not have found that FPS willfully infringed the patents. Therefore, Diamond is not entitled to entry of judgment as a matter of law that FPS willfully infringed the patents in suit.

III. CONCLUSION

Having reviewed the Defendant's Motion and Memoranda of Law, the Plaintiff's Memorandum of Law, the trial transcripts and the evidence submitted to the jury during the trial of this matter, the Court finds that FPS did not present evidence or argument to the jury which misconstrued the disputed claims of the patents in suit. The Court further finds that the jury had substantial evidence upon which to make its findings of

noninfringment of the patents in suit, including the patents themselves, the patent histories, the *Markman* Orders, the testimony of fact and expert witnesses, and drawings, diagrams, animations, models and videotapes of the accused machines. Therefore, the Court denies Diamond's Renewed Motion for Judgment as a Matter of Law that the accused machines infringed the patents in suit, that FPS made, used, or offered to sell an infringing machine in the United States, that FPS induced others to infringe the patents in suit, and that FPS willfully infringed the patents in suit. An Order follows.

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

MOBA, B.V., STAALKAT, B.V., and FPS FOOD PROCESSING SYSTEM, INC.

v.

DIAMOND AUTOMATION, INC.

Civil Action

No. 95-CV-2631

ORDER

AND NOW, this [29th] day of September, 2000, upon consideration of Diamond Automation, Inc.'s Renewed Motion Pursuant to Fed.R.Civ.P. 50 Seeking Judgment as a Matter of Law that Plaintiffs Infringed the Asserted Claims of the Four Patents-in-Suit and That That Infringement was Willful, the Memoranda of Law filed by the Parties, the transcript of the trial of this action and the evidence which was submitted to the jury at trial, **IT IS ORDERED** that the Motion is **DENIED**

BY THE COURT:.

/s/_____
BRUCE W.KAUFMAN, J.

[ENTERED: 10-2-00]

CLERK OF COURT

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

MOBA, B.V. STAALKAT B.V.,
and FPS FOOD PROCESSING SYSTEMS, INC.

Plaintiffs,

v.

DIAMOND AUTOMATION, INC.

Defendant.

ORDER

AND NOW, this 6th day of March, 2000, upon consideration of "Defendant's Motion Pursuant to Fed. R. Civ. P. 50 For Judgment As A Matter of Law Of Validity Of Claim 24 Of The '505 Patent and Infringement Of The Patent By The Moba Omnia" (Docket No. 240), it is

ORDERED THAT THE MOTION IS DENIED.

BY THE COURT:

/s/
BRUCE W. KAUFFMAN, J.

[FILED MAR-4 1999]

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

MOBA, B.V., STAALKAT, B.V., and FPS FOOD PROCESSING SYSTEMS, INC.
Plaintiffs,

v.

DIAMOND AUTOMATON, INC.,
Defendant.

Civil Action No.

95-CV-2631.

[CLERK OF COURT]

[MAR - 5, 1999]

MEMORANDUM

Bruce W. Kauffman, J. March 4, 1999

This is a patent case involving equipment and methods used to sort eggs. Moba, B.V., Staalkat, B.V., and FPS Food Processing Systems, Inc., (collectively, "Plaintiffs") brought the action pursuant to 28 U.S.C. § § 2201 & 2202 against Diamond Automation, Inc. ("Defendant") seeking a declaratory judgment that United States Patent Nos. 4,569,444 (the " '444 Patent"), 4,519,494 (the " '494 Patent"), 4,505,373 (the " '373 Patent"), and 4,519,505 (the " '505 Patent"), are invalid and, in any event, not infringed. Defendant, which owns the four patents in suit, filed a counterclaim for a declaratory judgment that the patents are valid and for a

permanent injunction barring Plaintiffs' manufacture, use or sale of the patented inventions.

Now before the Court is the parties' request for an interpretation of certain disputed terms in the patent claims. The Court held a *Markman* Hearing on April 23 and 24, 1998. On the basis of that hearing, the parties' submissions, and the Court's reading of the disputed patents and their prosecution histories, the Court will construe the disputed claim language as set forth in this Memorandum and the accompanying Order.

I. THE '444 PATENT

The '444 Patent describes "an improved egg processing system which is capable of grading and classifying and subsequently separating and packaging eggs at one or more receiving stations in the apparatus according to their individual physical characteristics at a high speed of operation." '444 Patent, col.1, ln. 49-53. The parties' dispute over the '444 Patent involves the interpretation of the following claim language:

A. the means for releasing eggs from the main egg-carrying conveyor;

B. the means for varying the position from which eggs are released; and

C. the "receiving means" into which the released eggs are dropped.

Each of these phrases is addressed below.[1]

A. Means For Releasing Eggs

1. Apparatus Claims 14, 33, 44, 67 and 76

The parties agree that the releasing means limitations in claims 14, 33, 44, 67, and 76 of the '444 Patent are written in "means-plus-function" form, which means that they describe the invention in terms of what it does, rather than in terms of its physical structure. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, ---, 117 S.Ct. 1040, 1048 (1997).* Means-plus-function claims are expressly authorized by the Patent Act,[2] which instructs that such claims "shall be construed to cover the corresponding structure [or] material described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6.[3] Section 112, ¶ 6 thus restricts claim limitations drafted in means-plus-function language to those structures or materials disclosed in the

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[1] The construction of the phrase "predetermined sequence" also was in dispute, but the Court construed this phrase in an earlier Memorandum. *See Moba v. Diamond,* No. 95-CV-2631 (E.D. Pa. filed Jan. 27, 1999). The Court will include its construction of the phrase in the Order that accompanies this Memorandum.

[2] *See* 35 U.S.C. § 112 ("An element in a claim ... may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof ....").

[3] Although 35 U.S.C. § 112, ¶ 6 does not explicitly so state, "structure and material go with means, acts go with steps.... [Paragraph 6] is implicated only when means plus function without definite structure are present, and that is similarly true with respect to steps, that the paragraph is implicated only when steps plus function without acts are present." *O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582, 42 U.S.P.Q.2d 1777 (Fed.Cir.1997).*

specification (and their equivalents) that perform the claimed function. *Personalized Media Communications, LLC v. International Trade Comm'n, 161 F.3d 696, 703, 48 U.S.P.Q.2d 1880 (Fed.Cir.1998).*

Claims 14, 33, 44, 67, and 76 contain a "releasing means" limitation relating to the release of eggs from the main conveyor of the egg processing system. The parties agree that the "releasing means" performs three functions: "(1) actuating selected egg-engaging elements on the main egg-carrying conveyor; (2) releasing eggs having the same physical characteristics from the main egg-carrying conveyor into a receiver; and (3) releasing eggs in a predetermined sequence based on characteristics of the eggs."[4]

The parties disagree about the identity of the "corresponding structure" linked or associated with these three functions. *See* 35 U.S.C. § 112, ¶ 6; *Kahn v. General Motors Corp., 135 F.3d 1472, 1476, 45 U.S.P.Q.2d 1608 (Fed.Cir.), cert. denied, 119 S.Ct. 177 (U.S.1998).* To resolve this dispute, the Court must analyze the functions recited in the claim, and then identify the structure associated or linked to those functions. *Kahn, 135 F.3d at 1476.*

The specification describes an egg conveyor that "conveys the eggs in adjacent pairs to a plurality of egg packing stations where the eggs are separated and packaged in cartons ...." '444 Patent, col. 4, ln. 46-48. "[C]arriage assemblies ... are part of the egg conveyor." *Id.* col. 8, ln. 33-34. Mounted on each carriage assembly is the "means ... for releasing eggs ...," *id.* col. 1, ln. 64-67, which includes two structural components: "a pair of

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[4] Def.'s Mem. Defining Disputed Claim Terms at 31; Pls.' Post-Hearing *Markman* Mem. at 18 & n. 10.

depending prongs or egg-engaging members," *id.* col. 8, ln. 37-40; and "extension bar[s] ... provided with an upper T-shaped portion," *id.* col. 8, ln 63-68. In operation, the latch pins of two comb-like bars engage the extension bars, causing the extension bars to rotate in a clockwise direction. *Id.* col. 9, ln. 52-57. The rotation causes the egg-engaging prongs "to move inward with respect to one another and close in an engaging relationship with the egg. In this manner, the egg is lifted ... by the prongs and conveyed to the receiving stations downstream on the machine." *Id.* col. 9, ln. 40-68.

Located at each receiving station is a "movable frame." *Id.* col. 10, ln. 14-17, 31-33. Mounted on the movable frame are "solenoids ..., which activate plungers."[5] *Id.* col. 10, ln. 14-17. "When the eggs arrive above the appropriate receiving station, the solenoids are selectively actuated ...." *Id.* col. 11, ln. 12-13. When actuated, the solenoids activate plungers, which engage the upper T-shaped portions of the extension bars, causing the extension bars to rotate in a counterclockwise direction. *Id.* col. 11, ln. 16-18. The rotation causes the egg-engaging prongs "to pivot outwardly with respect to one another.... The eggs are then released from the prongs ...." *Id.* col. 11, ln. 20-27.

In sum, the specification states that the solenoid-actuated plungers engage the upper T-shaped portion of the extension bars, which, when thus engaged, cause the egg-engaging prongs to open and release the eggs. The Court therefore concludes that the corresponding structure associated with "releasing means" are the

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[5] A solenoid is "a coil of wire commonly in the form of a long cylinder that when carrying a current resembles a bar magnet so that a movable core is drawn into the coil when a current flows." Webster's New Collegiate Dictionary 1097 (1981).

solenoid-actuated plungers, as described in the Order filed with this Memorandum, and their structural equivalents.

Plaintiffs argue that the corresponding structures are: "(1) a central processing unit of a computer; (2) some structure for actuating the solenoids; (3) solenoids to actuate the plungers; (4) plungers to engage the T-sections of extension bars; and (5) extension bars including T-sections."[6] Because the specification does not refer to a central processing unit of a computer or structure actuating the solenoids, however, the Court declines to find that these structures correspond to the "releasing means." Moreover, an artisan[7] readily would understand that solenoids must communicate with those elements of the egg processing system that store the physical characteristics upon which egg grading and release are based. The Court also declines to find that "plungers to engage the T-sections of extension bars" and "extension bars including T-sections" are among the corresponding structure because the releasable egg-engaging means includes as structure not only the egg-engaging prongs but also extension bars with T-sections, and identification of these elements as structure corresponding to the releasing means as Plaintiffs argue, therefore would be contrary to the specification description.

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[6] Pls.'Post-Hearing Markman Mem. at 18.

[7] A patent is addressed to one of skill in the art. *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 866, 26 U.S.P.Q.2d 1767, 1774 (Fed.Cir.1993)

2. Method Claim 56

The parties dispute whether the "releasing means" limitation of method claim 56 is a means- or step-plus-function limitation subject to construction in accordance with 35 U.S.C. § 112, ¶ 6. Claim 56 describes "[a] method of transferring eggs" from a conveyor to a receiving station, "which comprises the step[ ] of ... selectively releasing the eggs by moving a releasing means from above into the path of the conveyed eggs."[8]

As discussed above, an element of a claim is a means- or step-plus-function limitation if it is "expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof." 35 U.S.C. § 112, ¶ 6.[9] Plaintiffs assert that the Court must give the same interpretation to the "releasing means" limitation in method claim 56 and the "releasing means" limitation in apparatus claims 14, 33, 44, 67 and 76.[10] Defendant, on the other hand, asserts that claim 56 does not "include step plus function

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[8] '444 Patent, reexamination certificate B2 4,569,444, col. 8, ln. 55-56 (Ex. C to Def.'s Opp. to Pls.' Mot. for Summ. J.)

[9] Title 35 U.S.C. § 112, ¶ 6 thus refers to "means and steps, which must be supported by structure, material, or acts," and, as explained in note 3, *supra,* "structure and material go with means, acts go with steps. *"O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582, 42 U.S.P.Q.2d 1777 (Fed.Cir.1997).* In other words, a limitation must be construed in accordance with § 112, ¶ 6 if it recites a "step" for performing a function without the recital of "acts," or if it recites a "means" for performing a function without the recital of "structure" or "material."

[10] Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 20.

limitations," and therefore is not subject to construction in accordance 35 U.S.C. § 112, ¶ 6.[11]

Having reviewed the patent, the Court concludes that claim 56 does not describe any "specified function," and therefore is not a means- or step-plus- function limitation subject to construction in accordance 35 U.S.C. § 112, ¶ 6.

B. Means for Varying the Position From Which Eggs are Released

The '444 Patent describes an apparatus for conveying eggs to a receiving station where they are packaged. '444 Patent. The speed and position of the eggs at the moment they are released from the conveyor together determine the trajectory of the eggs upon their release. The trajectory, in turn, determines where the eggs land. By varying the speed of the conveyor belt and the location along the conveyor belt from which the eggs are released, the egg processing system can adjust the trajectory of the eggs so that the eggs properly land in the intended receiving station. Accordingly, the recitation of the apparatus for transferring eggs includes limitations regarding the "means for varying the position" from which eggs are released.[12]

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[11] *See* Def.'s Mem. Summarizing Disputed Claim Terms at 10; Def.'s Reply Mem. Summarizing Disputed Claim Terms at 2.

[12] *See, e.g.*, claims 14 & 67 (means "for varying the position" from which eggs are released "to compensate for changes in the forward drop trajectory of the eggs at different speeds ...."); claim 33 ("means ... for varying the position" from which eggs are released "according to the speed of [the] conveyor ...."); claims 44 & 76 ("means ... for varying the position" from which eggs are released "according to the speed of [the] conveyor to compensate for changes in the forward drop trajectory of the eggs at different speeds ....").

The "varying means" limitations are drafted in means-plus-function form, and as discussed above, are construed in accordance with 35 U.S.C. § 112, ¶ 6, by first, ascertaining the function of the "means," and second, determining which structure or material disclosed in the specification "corresponds" to that function. The Court then construes the claim as limited to the corresponding structure and its equivalents.

The function of the "varying means" is not in dispute. The parties agree that the means must:

1. vary the position of the frame or 'release means' with respect to the receiving station ...;
2. vary the position according to the speed of the main egg-carrying conveyor ....; [and]
3. compensate for changes in the forward drop trajectory of the eggs at different conveyor speeds.[13]

The parties' dispute pertains to the identity of the "corresponding structure" that performs this claimed function. *See* 35 U.S.C. § 112, ¶ 6.

Defendant contends that the structures that correspond to this function are "a hydraulic cylinder and a reversible energizing motor."[14] Plaintiffs assert that the hydraulic cylinder and reversible motor, alone, are

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[13] Def.'s Mem. Defining Disputed Claim Terms at 42-43; *see* Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 21.

[14] Def.'s Mem. Defining Disputed Claim Terms at 43; Def.'s Mem. Summarizing Disputed Claim Terms at 10.

insufficient to perform the claimed function of varying the position of egg release according to the speed of the main conveyor. They contend that the "complete" corresponding structure is "a pump, coupled by a hydraulic line to a valve which is connected by a coupling to another hydraulic line and hydraulic cylinder ...."[15] To resolve this dispute, the Court considers the specification, which describes two embodiments for carrying out the invention disclosed in the '444 Patent.

1. Figure 22

The first embodiment for carrying out the invention is illustrated in Fig. 22, which shows a movable frame that is coupled by certain specified mechanical elements (e.g., an extension rod, a compression spring, a stationary guide, circular collars) to a hydraulic cylinder which, in turn, is coupled by certain specified hydraulic elements (e.g., hydraulic pressure lines, a coupling, a valve, a pump) to the main drive motor for the egg conveyor. '444 Patent, col. 10, ln 19-30.

The specification discloses that the varying means in this embodiment operates as follows: When the speed of the egg conveyor increases, the flow of hydraulic fluid from the hydraulic pump causes the hydraulic cylinder to advance the movable frame "in a direction opposite to the direction of movement of the carriage assemblies to a position sufficient to compensate for the forward trajectory of eggs released at that particular speed." '444 Patent, col. 11, ln. 47 - 59. Conversely, when the speed of the egg conveyor decreases, the hydraulic cylinder moves the frame "in the opposite direction, i.e., in the same direction as the direction of movement of the carriage

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[15] Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 22; Pls.' Post-Hearing Markman Mem. at 19.

assemblies, to another position sufficient to compensate for the smaller forward drop trajectory of the eggs at a lower speed." *Id.*, col. 11. ln. 62-68.

Having reviewed the specification, the Court concludes that the corresponding structure associated with the "varying means" in the embodiment illustrated in Fig. 22 is a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid.

2. Figure 30

The second embodiment for carrying out the invention is illustrated in Fig. 30, which shows a movable frame coupled by an elongated threaded shaft to a reversible motor and additionally coupled by a cable to a pulley connected to the speed control that controls the motor that drives the egg-carrying conveyor. '444 Patent, col. 12, ln. 64-67; col. 13, ln.3-6.

The specification discloses that the varying means in this embodiment operates as follows:

> The position of [the movable frame] ... is adjusted by energizing [the reversible motor].... When the position of [the movable frame] is adjusted to the location corresponding to the particular speed at which the conveyor is to operate, [the cable] will be either wound or unwound on [the pulley], so as to rotate [the speed control] and adjust the speed of the drive motor for the conveyor.

'444 Patent, col. 13, ln. 7-12. The reversible motor thus affects the position of the movable frame, which in turn

affects the speed of the conveyor.[16] Having reviewed the specification, the Court finds that the corresponding structure associated with the "varying means" in the second embodiment, illustrated in Fig. 30, is a reversible motor.

C. Receiving Means

Each of the asserted claims of the '444 Patent recites a "receiving station"[17] or "receiving means"[18] into which eggs are released. The parties contest whether the recitations of "receiving station" or "receiving means" are subject to construction in accordance with 35 U.S.C. § 112, ¶ 6. Defendant contends that 35 U.S.C. § 112, ¶ 6 is inapplicable because the receiving station and

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[16] Hence, the varying means in the embodiment does *not* cause a simultaneous, dynamic positioning of the movable frame in response to a change in conveyor speed. *See* Reexamination File History, Final Office Action of December 12, 1989, Paper No. 20 at p. 11 (Ex. I to Def.'s Opp. to Pls.' Mot. for Summ. J.) (noting that "[t]he apparatus is only 'synchronized at all speeds' in the sense that once an adjustment of the stepper motor (150) input control has been effected by the operator from a remote control console, the speed of the conveyor (92) is correspondingly adjusted through interconnection (151, 152, 153) to the relocation of the release means (121), so as to be 'synchronized' therewith").

[17] *See, e.g.*, claims 14, 33, 67, 76 ("an apparatus for delivering eggs to a receiving station"); claims 25, 56 ("a method of transferring eggs ... to a receiving station").

[18] *See, e.g.*, claim 14 ("an apparatus for delivering eggs ... so as to release eggs ... into a receiving means at said receiving station."); claim 25 ("a method of transferring eggs ... comprising the steps of ... selectively releasing eggs ... into a receiving means at said receiving station ...."); claim 33 ("an apparatus for transferring eggs ... comprising .. means ... for selectively releasing eggs ... into a receiving means at said receiving station ...."), claim 76 ("an apparatus for delivering eggs to a receiving station ... comprising ... means for selectively releasing said eggs ... into the receiving means ....").

receiving means are merely "the place where a recited function occurs."[19] Plaintiffs contend that the function of the receiving means "is to receive eggs from the first conveyor and to help separate eggs into rows and to maintain accurate separation of the eggs into rows for delivery to the second conveyor."[20]

The Court agrees with Defendant that the language pertaining to a receiving station or receiving means does not set forth a "means ... for performing a specified function," 35 U.S.C. § 112, ¶ 6, and consequently is not subject to construction in accordance with § 112, ¶ 6. With one exception, the receiving station or receiving means is simply a place where a recited function or step occurs. The exception is the receiving means recited in claim 56, '444 Patent, col. 8, ln. 46-49, which reads:

> a method of transferring eggs from a variable speed conveying means to a receiving station which comprises the step[ ] of ...
>
> > providing a plurality of egg *receiving means* each for receiving eggs of a particular characteristic at the receiving station disposed below the conveying means....

'444 Patent, claim 56, col. 8, ln. 39-42, 46-49 (emphasis added). A review of the prosecution history reveals that although the above-quoted language does not merely set

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[19] Def.'s Reply Mem. Defining Disputed Claim Terms at 18.

[20] Pls.' Mem. of Law Defining Disputed Claim Terms for the *Markman* Hearing at 27.

forth the place where a recited function or step occurs, it is not a means-plus-function limitation.

The '444 Patent was reexamined twice. The first reexamination was requested on April 8, 1987, and reexamination certificate B1 4,569,444 was issued on August 9, 1988 (the "B1 Certificate").[21] In the B1 Certificate, claim 56 recites: "providing a plurality of egg receiving means at the receiving station disposed below the conveying means."[22] The second reexamination was requested on August 5, 1988 and February 25, 1990, and reexamination certificate B2 4,569,444 was issued November 26, 1991 (the "B2 Certificate").[23] During the second reexamination, Defendant amended the claim to clarify that the eggs are released based on their physical characteristics.[24] In the B2 Certificate, claim 56 recites: "providing a plurality of egg receiving means *each for receiving eggs of a particular characteristic* at the receiving station disposed below the conveying means."

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[21] B1 Certificate (Ex. B to Def.'s Opp. to Pls.' Mot. for Summ. J.)

[22] B1 Certificate, col. 6, ln. 61-62. (Ex. B to Def.'s Opp. to Pls.' Mot. for Summ. J.)

[23] B2 Certificate (Ex. C to Def.'s Opp. to Pls.' Mot. for Summ. J.).

[24] *See* Reexam. Control No. 90/001573, Examiner Interview Summary Record, Paper No. 14, June 8, 1989 and Patent Owner's Amendment, June 15, 1989 at 10. (Exs. E & F to Def.'s Opp. to Pls.' Mot. for Summ. J.)

(amendment effected during the second reexamination in italics).[25]

The prosecution history thus shows that the receiving means in claim 56 is not a "means ... for performing a specified function," but is simply a structure. As such, it is not subject to construction in accordance with 35 U.S.C. § 112, ¶ 6. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308, 46 U.S.P.Q.2d 1752 (Fed.Cir.1998).*

II. THE '494 PATENT

The '494 Patent, describes "an egg handling system" that includes "an apparatus for transferring eggs ... by a [high-speed] conveyor to a receiving station ... at which the eggs are collected and packaged," '494 Patent, col. 2, ln. 9 - 12, and then transferred to a second conveyor and carried away, *id.*, col. 12, ln.64-68. The parties request the Court to interpret the following claim language:

A. the "predetermined sequence" in which eggs are released from the high- speed conveyor;

B. the "receiving means" into which the released eggs are dropped; and

C. the movement of released eggs "downwardly and away from" the

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[25] B2 Certificate, col. 8, ln. 46-49 (Ex. C to Def.'s Opp. to Pls .' Mot. for Summ. J.)

high-speed conveyor and the receiving means.[26]

Each of these phrases is addressed below.

A. Predetermined Sequence

The asserted claims of the '494 Patent include a limitation that eggs are released at a receiving station "in a predetermined sequence" or "in accordance with a predetermined requirement."[27] The asserted claims of Defendant's '444 Patent also include a "predetermined sequence" limitation, and the Court construed this limitation in an earlier Memorandum. *See Moba v. Diamond, No. 95-CV-2631, (E.D. Pa. filed Jan. 27, 1999).*[28]

The '494 Patent expressly incorporates the specification of the '444 Patent by reference, '494 Patent, col.3, ln 15 - 22, and identically discloses the "predetermined sequence" limitation in a preferred embodiment, *compare* '494 Patent, col. 5, ln. 62 - col. 6, ln. 13 *with* '444 Patent, col. 13, ln. 23 - 43. Accordingly, the Court construes the "predetermined sequence" limitation

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[26] These phrases are found in independent claims 8, 28 and 34 and dependent claims 9-13, 15-18 and 31-33 (collectively, the "asserted claims of the '494 Patent").

[27] The '494 specification uses the phrase "predetermined sequence" in independent apparatus claims 8 and 34 and the phrase "predetermined requirement" in independent method claim 28 in similar contexts, and does not distinguish one phrase from the other. The Court therefore finds that the phrases "predetermined sequence" and "predetermined requirement" are synonymous.

[28] *See supra* note 1.

in the '494 Patent as it construed the "predetermined sequence" limitation in the '444 Patent.

B. Receiving Means

The egg handling system described and claimed in the '494 Patent includes at least one rotatable, resilient receiving means, '494 Patent, col. 2, ln. 17-18, and each of the asserted claims recites a receiving means limitation. The parties agree that the receiving means limitation recited in independent apparatus claims 8 and 34 is a means-plus-function limitation subject to the requirements of 35 U .S.C. § 112, ¶ 6. The parties disagree, however, about the receiving means' function and the corresponding structure.

Claim 8 defines "an apparatus for delivering eggs to a receiving station" that includes:

> rotatable, resilient receiving cylinder means disposed at the receiving station, said receiving means being adapted for rotational movement downwardly and away from said conveyor means for receiving eggs delivered by said conveyor means to said receiving station, said cylinder means having an axis substantially parallel to said first direction.

Id. at col. 9, ln. 1-7. Claim 34 also defines "an apparatus for delivering eggs to a receiving station" and recites the receiving means limitation in similar language, but also includes a requirement that the means is adapted to move eggs "downwardly and away" from the main conveyor, "so as to move the eggs in a direction substantially perpendicular" to the conveyor. *Id.* at col. 13, ln. 20--col. 14, ln. 4.

According to the plain language of the claims, the receiving means performs the following functions: (1) receiving eggs delivered by the main egg-carrying conveyor; (2) rotating the eggs downward and away from the conveyor; and, for claim 34 only, (3) moving eggs in a direction perpendicular to the conveyor.[29] These functions are linked to the following corresponding structure: (1) two rotatable resilient cylindrical brushes; (2) a single rotatable resilient cylindrical brush; (3) a resilient foam member; (4) a resilient inflatable member; and (5) any other resilient member. *Id.* at col 4, ln. 59-61; col. 6, ln. 14, 52-53.

The Court now turns to independent method claim 28. The parties disagree about whether the claim recites the receiving means limitation in means-plus-function form. Claim 28 recites a method of transferring eggs by a conveyor to a receiving station, and includes the step of "positioning a receiving means below the first conveyor means so as to receive therein and deliver to a common member the eggs released from the parallel spaced-apart rows of the first conveyor means." *Id.* at col. 12, ln. 17-21. An artisan would understand that the phrase "a receiving means" in this step is a generic description of structure or material and is not set forth in any part by the function it performs. The Court therefore concludes that the receiving means limitation in claim 28 is not expressed in means-plus-function form, and its construction therefore is not limited to "the corresponding structure disclosed in the specification, and equivalents thereof." 35 U.S.C. § 112, ¶ 6.

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[29] Plaintiffs argue that the receiving means performs two functions: (1) "to help separate eggs into rows;" and (2) "to maintain accurate separation of the eggs into rows for delivery to the second conveyor." (Pls.' Mem. Defining Disputed Claim Terms for the *Markman* Hearing at 36.) Neither function is recited by claim 8 or 34.

C. Downwardly and Away From

The asserted claims of the '494 Patent include a limitation requiring that the eggs are released "downwardly and away from" the overhead conveyor.[30] Plaintiffs argue that this limitation requires that the eggs are transported "to a point below the receiving means."[31] The asserted claims of the '494 Patent also include a limitation requiring that eggs are released "downwardly and away from" the receiving means.[32] Plaintiffs argue that this limitation requires that "the eggs be moved to a level lower than the level at which it [*sic*] left the receiving means."[33]

Because an artisan would understand that an egg cannot be entirely below the receiving means, the Court rejects Plaintiffs' construction of the "downwardly and away from" limitations. The specification, referring to Fig. 3, provides, in pertinent part:

> the uppermost surface 45 [of support member 42] is disposed beneath and

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[30] Claim 8, for example, describes an apparatus that includes "means disposed at the receiving station ... being adapted for rotational movement downwardly and away from said conveyor means ...." '494 Patent, col. 9, ln. 1-5.

[31] Pls.' Mem. Defining Disputed Claims for the *Markman* Hearing at 32.

[32] Claim 8, for example, describes an apparatus that includes "support means, disposed below said receiving means, for guiding eggs delivered to said receiving means downwardly and away from said receiving means ...." '494 Patent, col. 9, ln. 8-10.

[33] Pls.' Mem. Defining Disputed Claims for the *Markman* Hearing at 33.

> slightly spaced from the peripheral edges of the forward most bristles of cylinders 39 in order to maintain contact between cylinders 39 and the eggs guided along member 42 onto conveyor 43. This surface may, if desired, be curved in a direction substantially in conformance with that of the forward most cylinder.

Id. at col. 5, ln. 28-35. Upon reading the specification, an artisan would conclude that an egg cannot be at a point or level completely below the receiving means because: (a) the cylinders are resilient and composed of compliant material; (b) the guide surface is slightly spaced from the edge of the cylinders; (c) the guide surface may be curved to conform with the cylinder; and (d) the eggs maintain contact with both the cylinder and the guide surface.

III. THE '373 PATENT

A. Background

The '373 Patent, entitled "Egg Transfer System," describes and claims "an apparatus and method by which eggs are transferred from a candling station through a weighing station and on to conveying means for delivery to egg packers disposed downstream thereof." '373 Patent, col. 1, ln. 9-13. The parties dispute the proper construction of method claim 35 and dependent claims 37, 39 and 40 (collectively, the "asserted claims of the '373 Patent").

One objective of the '373 Patent is "to provide an egg lifting system" that transfers eggs from a holding station onto a conveyor by "lift[ing] an egg upwardly and in a direction away from a holding station." *Id.* at col. 4, ln. 46-48. To accomplish this objective, claim 35 of the '373 Patent claims "a method of transferring eggs," which

includes two steps: (1) "lifting the eggs from the holding station from the underside thereof and rotating the eggs upwardly with respect thereto"; and (2) "reciprocally moving the lifted eggs away from the holding station." *Id.* at col. 17, ln. 13-17. The parties dispute the proper construction of the phrases "rotate the eggs upwardly" and "reciprocally moving lifted eggs."

1. "Rotating the Eggs Upwardly"

Plaintiffs propose that the Court interpret the phrase "rotating the eggs upwardly" to require that "the lifting movement includes a rotational portion which requires circular movement around a fixed point."[34] Defendant objects to this proposed interpretation. It argues that "claim 35 contains no requirement that the rotating step be about a fixed axis," and notes that the ordinary definition of "rotate" is to turn about a center or axis, which may be fixed *or* moving.[35] Plaintiffs do not dispute that the ordinary meaning of "rotate" does not require the axis to be fixed, but argue that the specification of the '373 patent "clearly requires that the rotational movement be about *an axis* ... which *does not move* during the rotation of the lifting means."[36] Defendant responds that Plaintiffs' construction

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[34] Pls.' Request for Claim Interpretation at 6.

[35] Def.'s Mem. Summarizing Disputed Claim Terms at 7; *see* Webster's Third New International Dictionary 1976 (Philip Babcock Gove ed., 1986) (hereinafter "Webster's") (defining "rotate," def. *vi* 1); Academic Press Dictionary of Science and Technology, 1883 (Christopher Morris, ed., 1992) (defining "rotation," def. Mechanics 1).

[36] Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 31; Pls.' Post-Hearing *Markman* Mem. at 25.

improperly restricts the scope of the claim to what is shown in a preferred embodiment.[37]

2. "Reciprocally Moving the Lifted Eggs"

Plaintiffs propose that the Court interpret the phrase "reciprocally moving the lifted eggs" to require that "the eggs are lifted from the holding stations to the main conveyor by movement of the eggs in two distinct planes perpendicular to one another."[38] Defendant contends that the phrase should be interpreted in accordance with its ordinary meaning[39] and argues that "nowhere in claim 35 is there any language requiring movement of the eggs either in 'two distinct planes' or in planes that are 'perpendicular to one another."[40] Plaintiffs do not dispute that the ordinary meaning of "reciprocate" does not require movement in perpendicular or distinct planes, but they argue that the specification of the '373 patent gives the term "additional special meaning."[41] Defendant again responds that Plaintiffs' interpretation improperly restricts the scope of the claim to what is shown in a preferred embodiment.[42]

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[37] Def.'s Mem. Summarizing Disputed Claim Terms at 7.

[38] Pls.' Request for Claim Interpretation at 6.

[39] The ordinary definition of "reciprocate" is "to move forward and backward alternately, usually in a straight line." Webster's 1895 (defining "reciprocate," def. *vi* 2).

[40] Def.'s Mem. Defining Disputed Claim Terms at 24-25; Def.'s Reply Mem. Defining Disputed Claim Terms at 27.

[41] Pls.' Mem. Defining Disputed Claim Terms at 32.

[42] Def.'s Mem. Summarizing Disputed Claim Terms at 7.

B. Analysis

The specification does not use the terms "rotating" or "reciprocally" in an uncommon way. In the preferred embodiment, however

> a lifting means ... lifts the egg upwardly and away from the second holding station. The lifting means is rotationally and reciprocally movable with respect to the second holding station with the rotational movement being about an axis generally parallel to the line formed between the holding stations and weighing station.

'373 Patent, col. 2, ln. 29-38. Because the axis runs parallel to the line formed between the holding stations and weighing station, the lifting means cannot move in the manner described in the preferred embodiment unless the rotational movement is perpendicular to the reciprocal movement.

Nevertheless, "particular embodiments and examples appearing in the specification will not generally be read into the claims." *Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 U.S.P.Q.2d 1057, 1064 (Fed.Cir.1988); see also Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865, 9 U.S.P.Q.2d 1289, 1299 (Fed.Cir.1988)* ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations ."). And here, the specification provides no basis for reading the particular limitations of the preferred embodiment into claim 35. On the contrary, the specification expressly states that "other variations and modifications will be apparent to those skilled in the art." *Id.* at col. 9, ln. 54 - 55.

In addition to arguing that the Court should limit claim 35 to the preferred embodiment, Plaintiffs ask the Court to read claims 10 and 24 and the claims depending therefrom into claim 35.[43] Because claims 10 and 24 are narrower than claim 35, however, the Court declines to do so. *See D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574, 225 U.S.P.Q. 236, 239 (Fed.Cir.1985)* ("Where some claims are broad and others narrow, the narrow claim limitations cannot be read into the broad whether to avoid invalidity or to escape infringement.").

For the above reasons, the Court will construe the terms "rotating" and "reciprocally" as used in claim 35 in accordance with their ordinary meanings.[44]

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[43] Claim 10 recites, in pertinent part, "lifting the eggs from the holding station ... and rotating the eggs upwardly with respect thereto about an axis generally parallel to a line formed by said candling, weighing and holding stations." '373 Pat., col. 12, ln. 29-33. Claim 11, depending from claim 10, recites "said step of lifting the eggs from the holding station ... further includes the step of reciprocally moving the lifted eggs away from the holding station." *Id.* at col. 12, ln. 48-53.

Claim 24 recites, in pertinent part, "rotary drive means including a drive member coupled to said lifting member for rotationally driving said member about an axis generally parallel to the longitudinal dimension of said egg holding means." *Id.* at col. 14, ln. 52-55. Claim 27, depending from claim 24 through claim 25, recites "a reciprocating drive means coupled to said lifting member for reciprocally moving said lifting member toward and away from said egg holding means." *Id.* at col. 15, ln. 26-29.

[44] The ordinary meanings of "rotating" and "reciprocally" are not in dispute. *See* Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 30-31.

IV. THE '505 PATENT

The '505 Patent, entitled "Egg Transfer System," is a continuation-in-part patent of the '373 Patent. It describes and claims an apparatus and method "for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus." '505 Patent, col. 2, ln. 32-35, ln. 59-62. Independent method claim 24 of the '505 Patent recites "a method for advancing a plurality of rows of eggs from a candling station through a plurality of weighing stations in an egg grading apparatus," which comprises the following steps:

> conveying eggs from said candling station to elongated guide means disposed adjacent to said candling station,
>
> continuously advancing said eggs on said guide means through said weighing stations,
>
> simultaneously with said step of advancing, weighing said eggs at said weighing stations,
>
> guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations,
>
> guiding further eggs to said plurality of holding stations, and

> lifting said eggs simultaneously from said holding stations and said plurality of longitudinally spaced-apart locations.

'505 Patent, col. 13, ln. 33-54. The parties' disagreement largely centers on the guiding steps.[45] They disagree about the proper construction of the terms "holding station" and "spaced-apart locations," and about whether eggs are temporarily stored in a holding station after each guiding step, and whether the guiding steps require "transfer by lifting." In addition, the parties disagree about the proper construction of the term "elongated guide means."

A. Holding Station and Spaced-Apart Locations

Plaintiffs argue that "holding stations and spaced-apart locations must be interpreted as structures located at two separate and distinct positions from which eggs are lifted."[46] Neither the claim, the specification, nor the prosecution history supports a construction that requires the "holding station" or the "spaced-apart locations" to be physical structures. The claim does not use the terms "holding station" and "spaced-apart locations" in an

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[45] The "guiding steps" are:

- "guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means,"
- guiding the eggs "to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations," and
- "guiding further eggs to said plurality of holding stations ."

[46] Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 39.

uncommon way,[47] the specification indicates that the inventor intended the terms to be spatial references,[48] and the prosecution history confirms that the examiner understood that the phrase "holding station" refers to a first location from which eggs are lifted simultaneously with eggs at a second downstream location.[49] The Court therefore declines to adopt Plaintiffs' proposed construction of the terms "holding station" and "spaced apart locations."

Instead, the Court interprets the term "holding station" to mean a first location in space to which an egg is moved and at which the egg may maintain position until it is lifted simultaneously with an egg at a "spaced-apart location." The Court interprets the term "spaced-

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[47] The ordinary meaning of the term "station" is "the place or position in which something or someone stands or is assigned to stand or remain." Webster's at 1861 (defining "station," def. 2). The most relevant definition of the term "holding" as applied to dynamic systems such as a system for continuously transferring eggs is "maintaining position." *Id.* at 1078 (defining "hold," def. vi .a). The ordinary meaning of the term "location" is "a position or site occupied or available for occupancy." *Id.* at 1128 (defining "location," def. 2.a).

[48] The specification describes the advancement of the eggs with language such as: the eggs are fed "into the holding stations"; advancing bars engage the eggs "in the holding stations"; and the eggs are moved "into pick-up positions." '505 Patent, col. 5, ln. 58-68.

[49] In rejecting dependent claim 28, later incorporated, *inter alia*, in amended and allowed claim 24, the examiner commented "[t]he claim requires eggs to be advanced from the egg holding stations to a second location spaced from the egg holding stations.... It appears that Applicant intended to claim the transfer of eggs from the eggs holding station to a subsequent downstream second location and, upon a subsequent egg arriving at the egg holding station, the lifting means simultaneously engages both eggs in the egg holding means and the second location." Application No. 06/452,451, Examiner's Communication, Paper No. 3, mailed May 31, 1984 at 2-3.

apart locations" to mean a second location downstream from and substantially horizontally co-planar with the "holding station."

B. Manner in Which Eggs Are Transferred

Plaintiffs request the Court to construe the guiding steps in claim 24 to require "(1) transfer by *lifting* of eggs to holding stations; (2) transfer by *lifting* of eggs from the holding station to the spaced-apart locations; and (3) transfer by *lifting* of more eggs to the holding stations."[50] In addition, they "request the Court to find specifically that travel of eggs between the 'holding stations' and the 'spaced-apart locations' is not via conveyor belt or other physically connected pathway but rather by 'picking and placing."[51] The Court declines to impose a "lifting" or "picking and placing" requirement on claim 24.

Although the specification discloses a preferred embodiment in which eggs are advanced by a "pick and place" mechanism, the specification provides no basis for reading the particular limitations of the preferred embodiment into claim 24. On the contrary, the specification expressly states that "other variations and modifications will be apparent to those skilled in the art." '505 Pat., col. 8, ln. 67-68. As discussed above,[52] unless the specification provides some basis for reading the particular limitations of the preferred embodiment into

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[50] Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 39.

[51] Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 4.

[52] See supra Part III.B.

the claim, references to the embodiment are not claim limitations. *See Laitram, 863 F.2d at 865, 9 U.S.P.Q.2d at 1299.*

Plaintiffs also argue that "use of the term 'holding station' requires that the eggs be held or temporarily stored at the holding station" after each guiding step.[53] Again, Plaintiffs' argument finds no support in the claim language, the specification, or the prosecution history. The Court therefore construes the guiding steps in claim 24 in accordance with the plain meaning of their language:

- "guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means" means carrying eggs to holding stations.

- "and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations," means carrying eggs from the holding stations to the spaced-apart locations.

- "guiding further eggs to said plurality of holding stations," means carrying more eggs to the holding stations.

C. The Elongated Guide Means

Claim 24 recites a step of "conveying eggs ... to elongated guide means. " '505 Patent, col. 13, ln. 37-38. Plaintiffs argue that this limitation is recited in means-plus-function form and therefore should be interpreted in accordance with 35 U.S.C. § 112, ¶ 6. But the claim

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[53] Pls.' Mem. of Law Defining Disputed Claim Terms for the *Markman* Hearing at 52.

recites no function linked to the "elongated guide means" limitation. The Court therefore rejects Plaintiffs' argument and construes "elongated guide means" in accordance with its ordinary meaning: any structural guide that is elongated.

V. CONCLUSION

Specific construction of the disputed claims is set forth in the Order that accompanies this Memorandum.

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA

MOBA, B.V., STAALKAT, B.V., and FPS FOOD PROCESSING SYSTEMS, INC.
Plaintiffs,

v.

DIAMOND AUTOMATON, INC.,
Defendant.

Civil Action

No. 95-CV-2631

ORDER

AND NOW, this 4th day of March, 1999, upon consideration of the joint request by all parties in the above-captioned action for interpretation of certain claim language in dispute, and after a two-day Markman Hearing and reviewing the parties' briefs and supporting materials, it is hereby

ORDERED that the claim language in dispute shall be construed as follows:

I. **U.S. Patent No. 4,569,444**

A. The phrase "predetermined sequence" is defined as follows:

1. In claims 14-16, 19-22, 33-35, 38, 41-43, 67-69, 72, 74 and 76, the phrase "predetermined sequence" means:

"the order in which eggs are released from the egg-carrying

conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released."

2. In claims 25-28, and 56, the phrase "predetermined sequence" means:

the order in which eggs are released from the egg-carrying conveyor so that each released egg not only drops into the receiving station for the egg's particular grade but also effects an equal distribution of released eggs across the width of the receiving station, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released.

3. In claim 44, 45 and 48-51, the phrase "predetermined sequence" means:

"the order in which eggs are released from the egg-carrying conveyor so that each released egg not only drops into the receiving station for the egg's particular grade but also drops into a different channel than an adjacently conveyed egg is dropped when

adjacently conveyed eggs have substantially the same physical characteristics, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released."

4. In claims 54 and 55, the phrase "predetermined sequence" means:

"the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being defined before the eggs arrive at the locations from which they are released."

B. The phrase "means for releasing eggs" is defined as follows:

1. solenoid-actuated plungers, the solenoids for which communicate with the elements of the egg-processing system that determine the physical characteristics of the eggs through shared access to a memory device, such as a random access memory associated with a central processor unit; or

2. a structural equivalent of (1), which performs the following functions: (a) actuating selected egg-engaging elements on the main egg-carrying

conveyor; (b) releasing eggs having the same physical characteristics from the main egg-carrying conveyor into a receiver; and (c) releasing eggs in a predetermined sequence based on characteristics of the eggs.

C. The phrase "releasing means" in claim 56 is defined as follows:

a generic structure that releases eggs from the prongs of the egg-engaging means upon being moved from above into the path of the conveyed eggs.

D. The phrase "means for varying the position from which eggs are released" is defined as follows:

1. In claims 14, 25, 44, 67 and 79 the phrase "means for varying the position from which eggs are released" means:

   a. "a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid;" or

   b. a structural equivalent of (a) which performs the following three functions: (i) varying the position of the frame with respect to the receiving station; (ii) varying the frame

position according to the speed of the main egg-carrying conveyor; and (iii) compensating for changes in the drop trajectory of the eggs at different conveyor speeds.

2. In claims 33, 54 and 56 the phrase "means for varying the position from which eggs are released" means:

a. "a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid" or a reversible motor; or

b. a structural equivalent of (a) which performs the following two functions: (i) varying the position of the frame with respect to the receiving station; and (ii) varying the frame position according to the speed of the main egg-carrying conveyor.

c. the "means for varying the position from which eggs are released" must be connected to the movable frame and must change the position at which eggs are released concurrently with a change

in conveyor speed; operator intervention is permissible.

E. The phrase "receiving means" is defined as follows:

1. In all asserted claims except claim 56, the phrase "receiving means" refers to the location at which a recited function occurs.

2. In claim 56, the phrase "receiving means" refers to a generic structure into which eggs from the main egg-carrying conveyor are dropped.

II. U.S. Patent No. 4,519,494

A. The phrase "predetermined sequence" is defined as follows:

"the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released."

B. The phrase "receiving means" is defined as follows:

1. In claims 8-13, 15-18, and 34 the phrase "receiving means" means:

a. two rotatable resilient cylindrical brushes; or a single rotatable resilient

cylindrical brush; or a resilient foam member; or a resilient inflatable member; or any other resilient member, or

b. a structural equivalent of (a) which performs the following functions: (i) receiving eggs delivered by the main egg-carrying conveyor; (ii) rotationally moving the eggs downwardly and away from the conveyor; and, for claim 34 only, (iii) moving eggs in a direction perpendicular to the main conveyor.

2. In claims 28 and 31-33 the phrase "receiving means" refers to a generic structure into which eggs from the main egg-carrying conveyor are dropped.

C. The phrase " downwardly and away from" is defined as follows:

1. the receiving means must be rotated downwardly (i.e., toward the ground) and be rotated away from the main egg-carrying conveyor from which the eggs are released.

2. the eggs which are received by the receiving means must be guided downwardly (i.e., toward the

ground) and also be guided away from the receiving means.

III. U.S. Patent No. 4,505,373

A. The term "rotating the eggs upwardly" is defined as follows:

turning about an axis; the axis may be fixed or moving.

B. The phrase "reciprocally moving the lifted eggs" is defined as follows:

moving forward and backward alternately, usually in a straight line.

IV. U.S. Patent No. 4,519,505

A. The phrase "holding station" is defined as follows:

"a first location in space to which an egg is moved and at which the egg may maintain position until the egg is lifted simultaneously with an egg at a 'spaced-apart location." '

B. The phrase "spaced-apart location" is defined as follows:

"a second location downstream from and substantially horizontally co-planar with the 'holding station." '

C. The phrase "guiding steps" is defined as follows:

1. "carrying eggs to holding stations;"

2. "carrying eggs from the holding stations to the spaced-apart locations;" and

3. "carrying more eggs to the holding stations."

D. The phrase "elongated guide means" is defined as follows:

"any structural guide which is elongated."

BY THE COURT:

/s/
BRUCE W. KAUFFMAN, J.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

01-1063,-1083

Moba, B.V., Staalkat, B.V. and
FPS Food Processing Systems, Inc.

Plaintiffs-Cross Appellants,

v.

Diamond Automation, Inc.,

Defendant-Appellant.

ORDER

Before RADER, Circuit Judge, SCHALL, Circuit Judge, and BRYSON, Circuit Judge

A petition for rehearing having been filed by the CROSS-APPELLANTS,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, DENIED.

The mandate of the court will issue on May 2, 2003.

FOR THE COURT,
/s/
Jan Horbaly
Clerk

Dated: April 25, 2003

cc: Albert J. Breneisen
Jon A. Baughman

MOBA BV V DIAMOND AUTOMATION, 01-1063,-1083 (DCT – 95-CV-2631)

UNITED STATES PATENT [19] [11] Patent Number: 4,519,505

Thomas [45] Date of Patent: May 28, 1985

[54] EGG TRANSFER SYSTEM

[75] Inventor: Leslie P. Thomas, Canton, Mich.

[73] Assignee: Diamond Automations, Inc., Framington, Mich.

[21] Appl. No.: 452,451

[22] Filed: Dec. 23, 1982

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 394,443, Jul 1, 1982

[51] Int. Cl.[3].....A01K 43/08
[52] U.S. Cl. 209/513; 98/488 198/504; 209/917
[58 Field of Search.....209/510, 512, 513, 514, 209/911, 917, 918, 592-596, 563-566; 198/488, 504,505

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Primary Examiner –Robert B. Reeves
Assistant Examiner – Edward M. Wacyra
Attorney, Agent or Firm – Kenyon & Kenyon

[57] ABSTRACT

A method and apparatus for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus. The eggs are received from the candling station by elongated guide members and are advance continuously on the guide members through the weighing stations by advancing bars disposed vertically above the guide members. After weighing, the eggs are advanced to a plurality of holding stations disposed in alignment with the downstream of the guide members and weighing stations. Pairs of eggs are lifted from the

holding stations and horizontally adjacent pick-up locations by a rotatable and reciprocal lifting mechanism which rotates about an axis perpendicular to the longitudinal axis of the guide members so as to facilitate engagement and vertically upward lifting of the eggs during upward rotational movement thereof.

41 Claims, 18 Drawing Figures

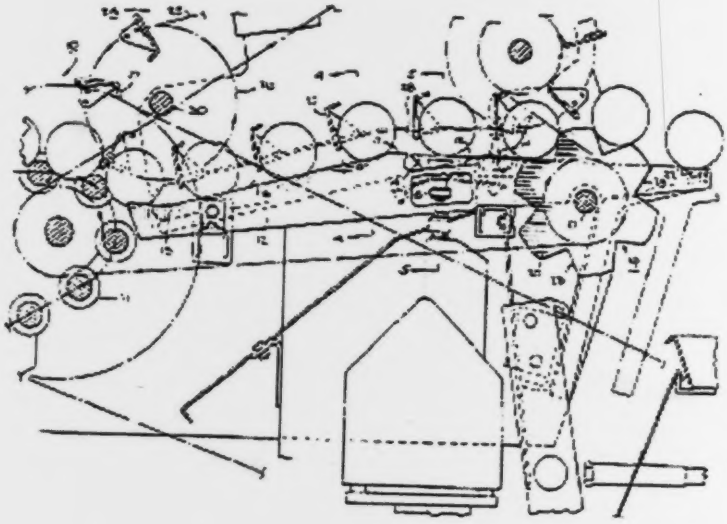


Fig. 1.

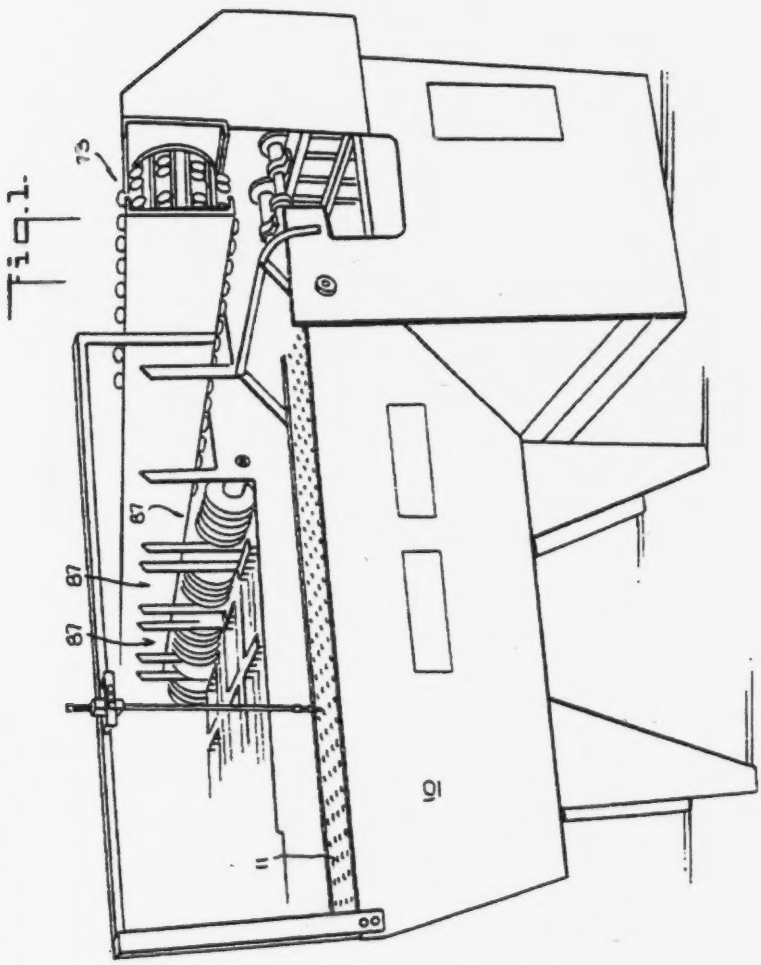
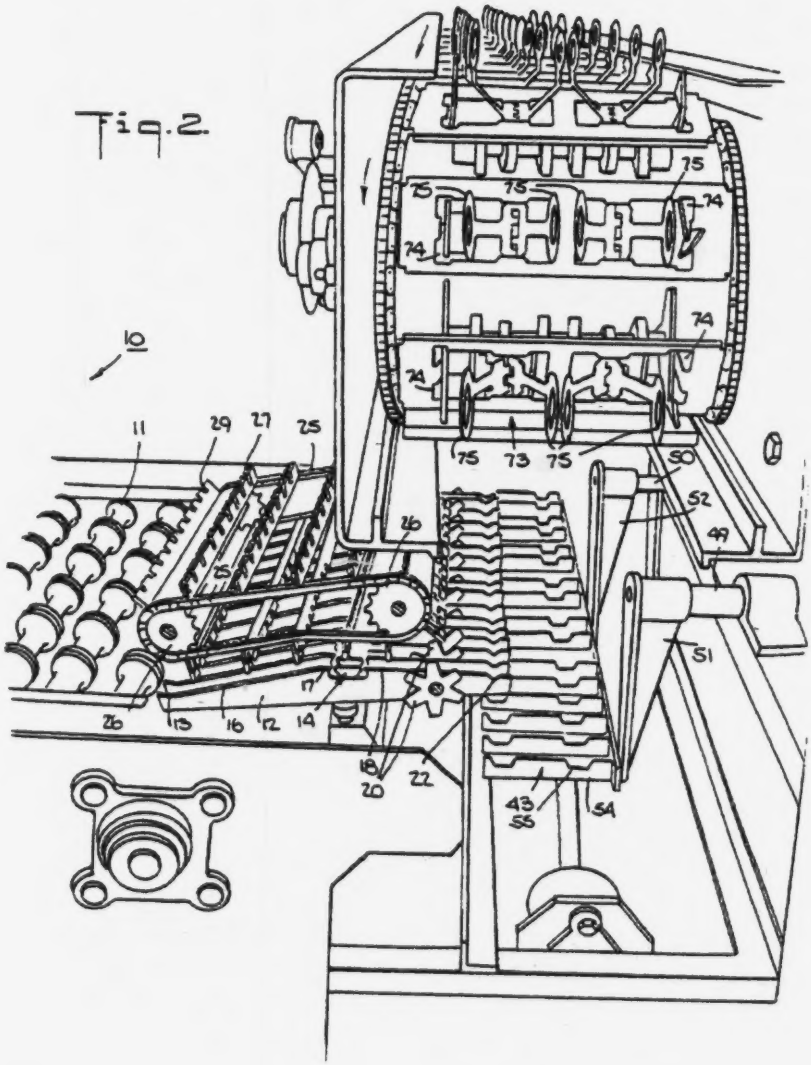


Fig. 2.



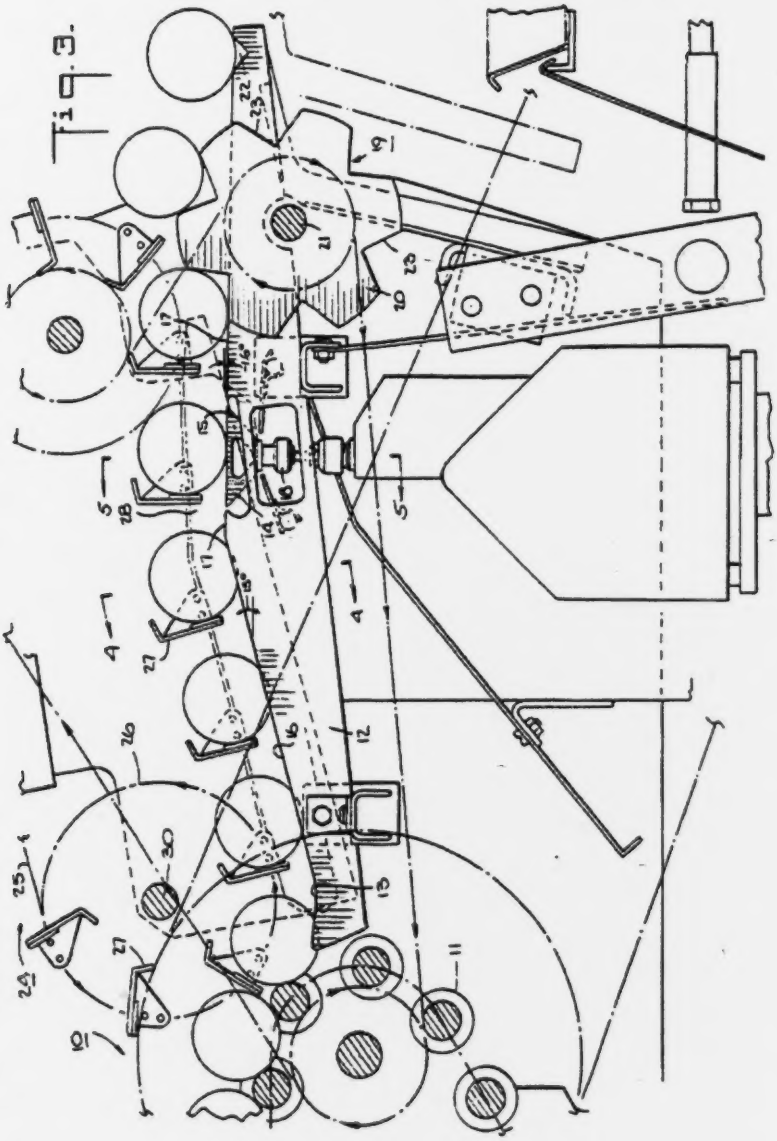


Fig. 3.

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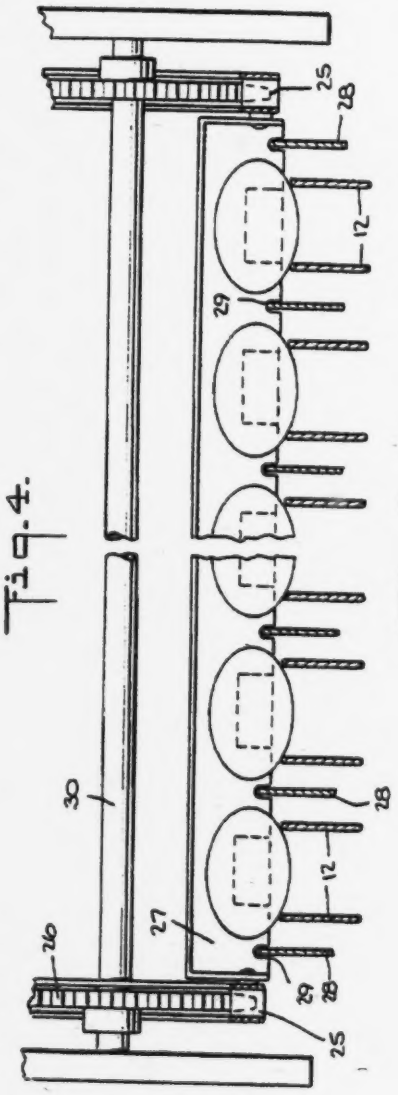

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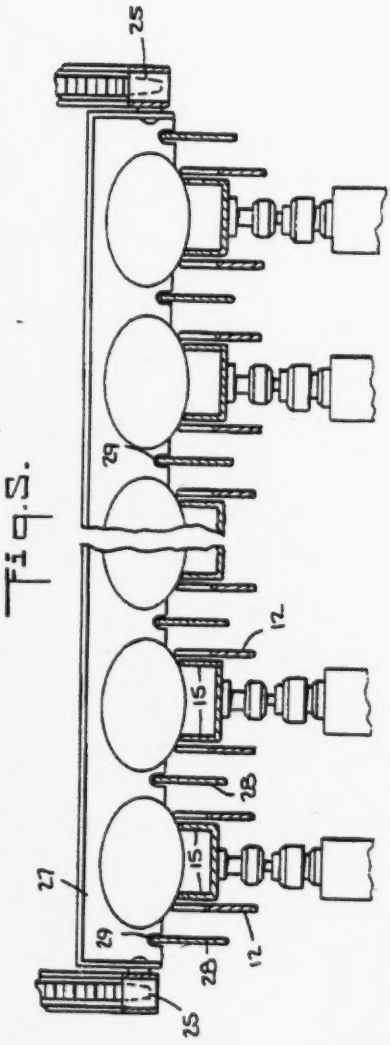

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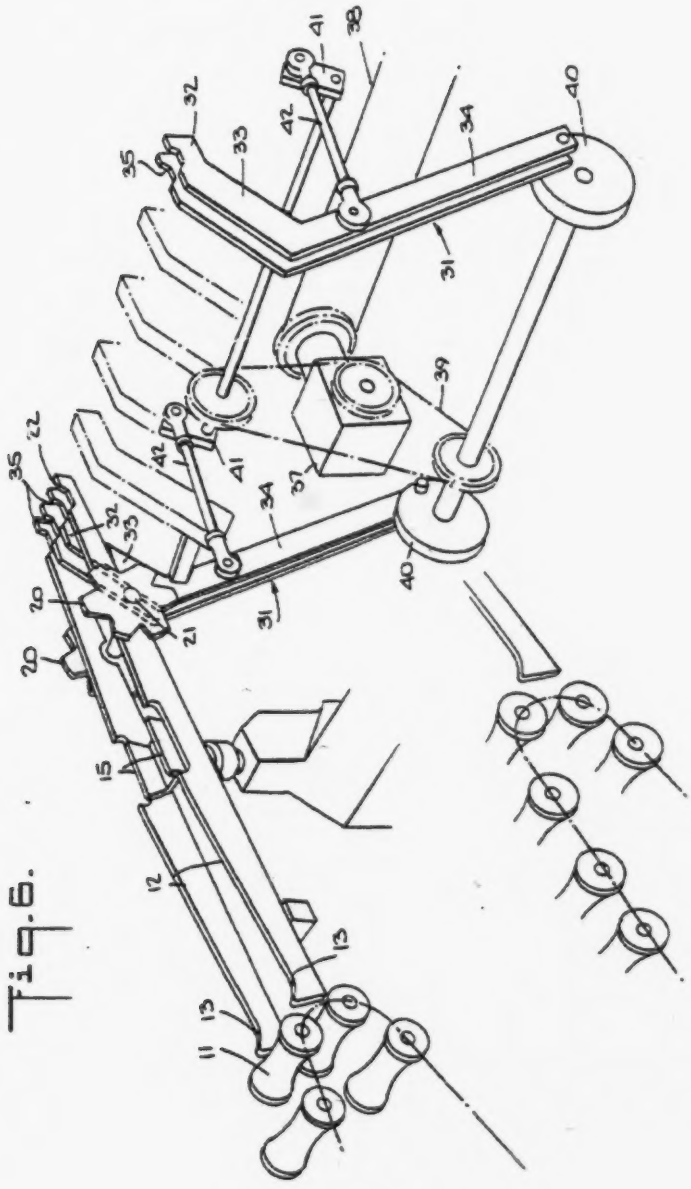
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Fig. 6.

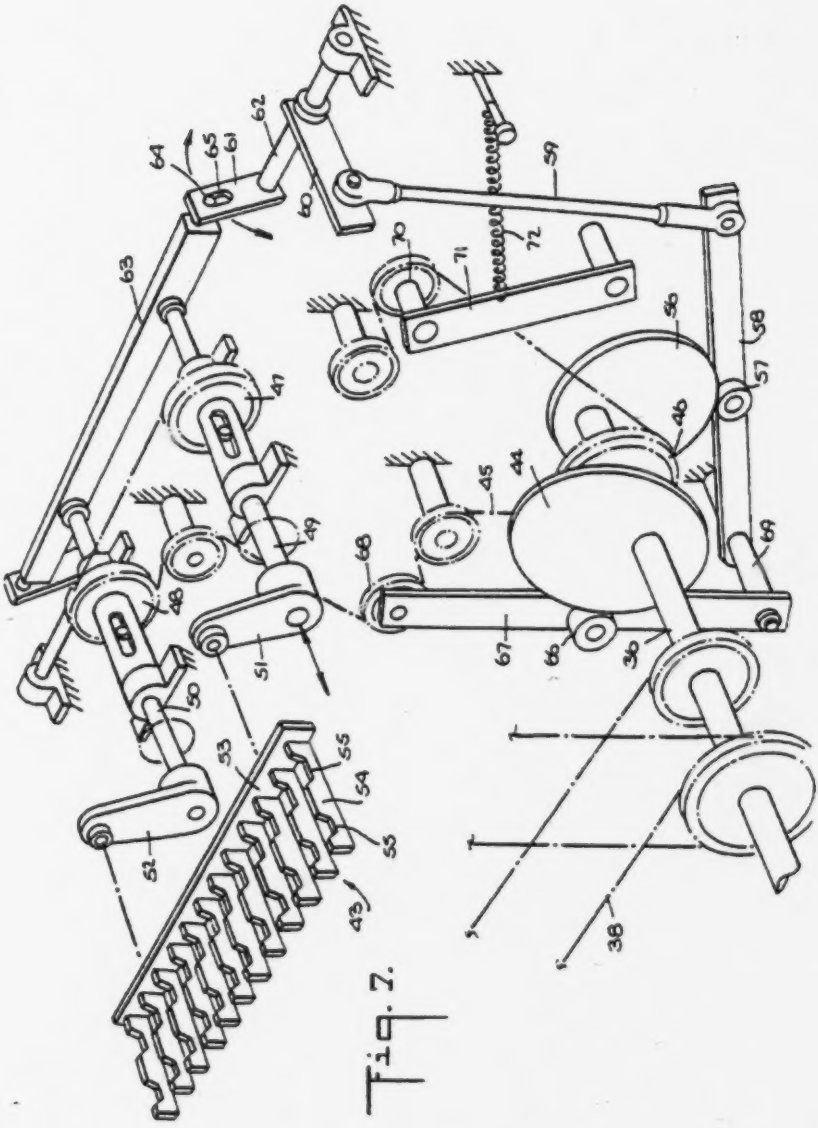
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Fig. 7.

Fig. 4.

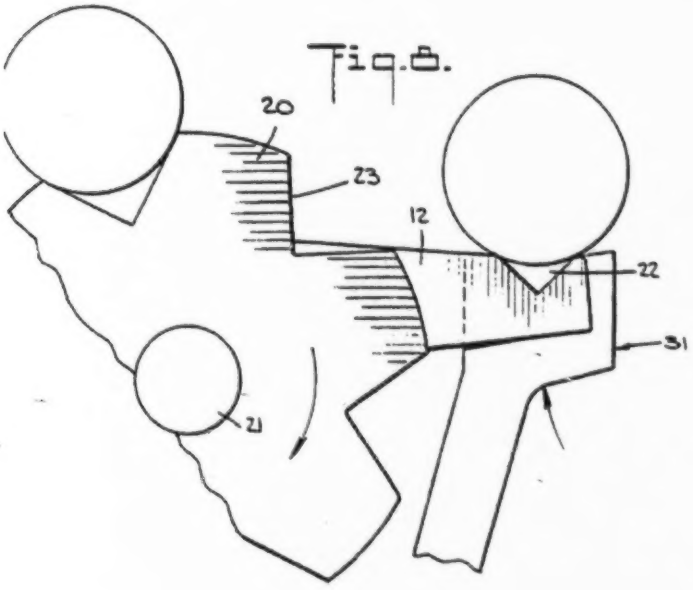
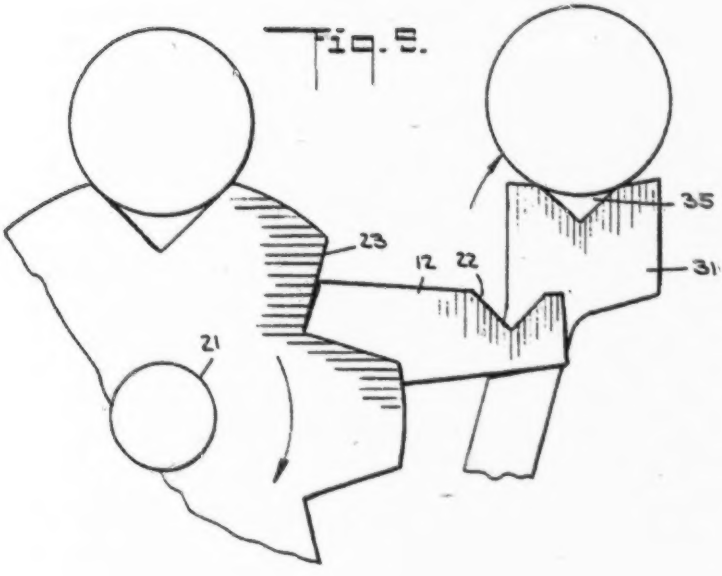


Fig. 5.



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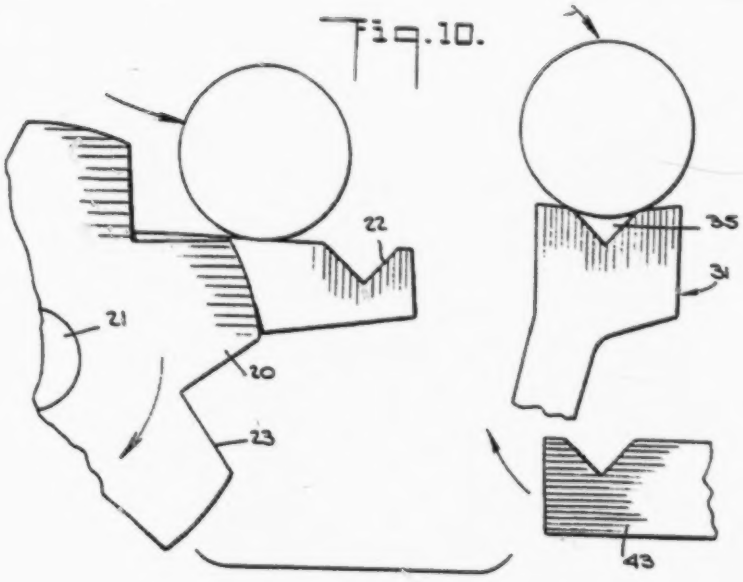

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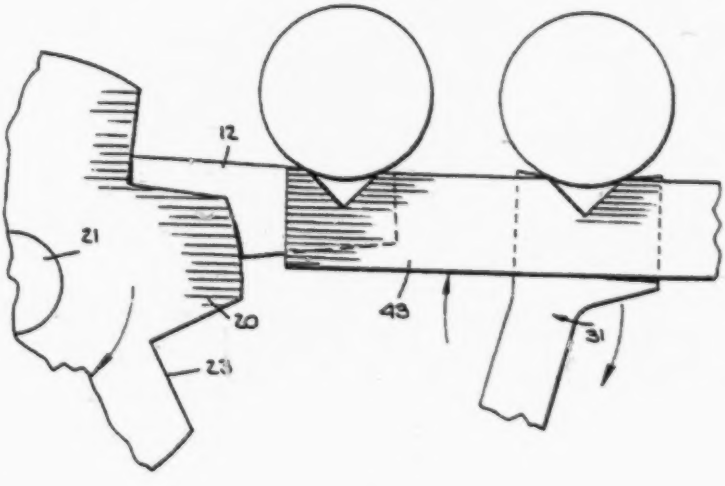

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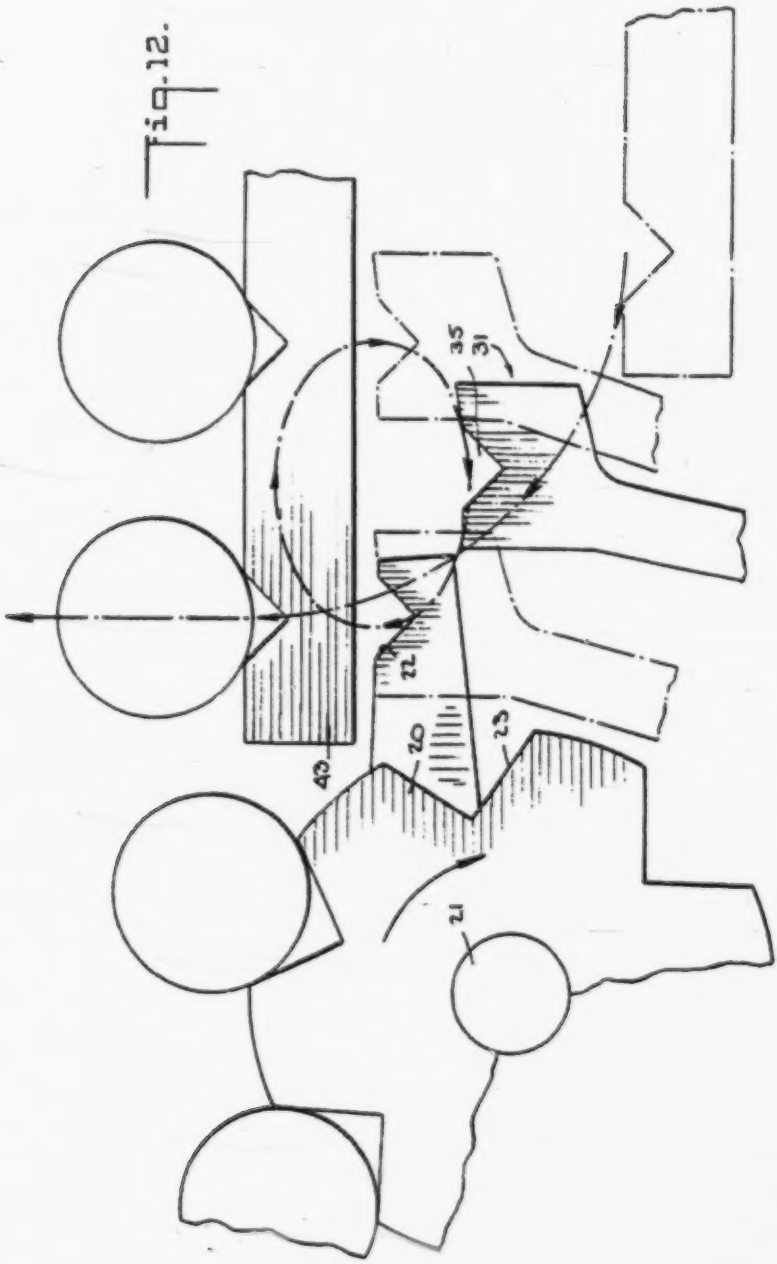

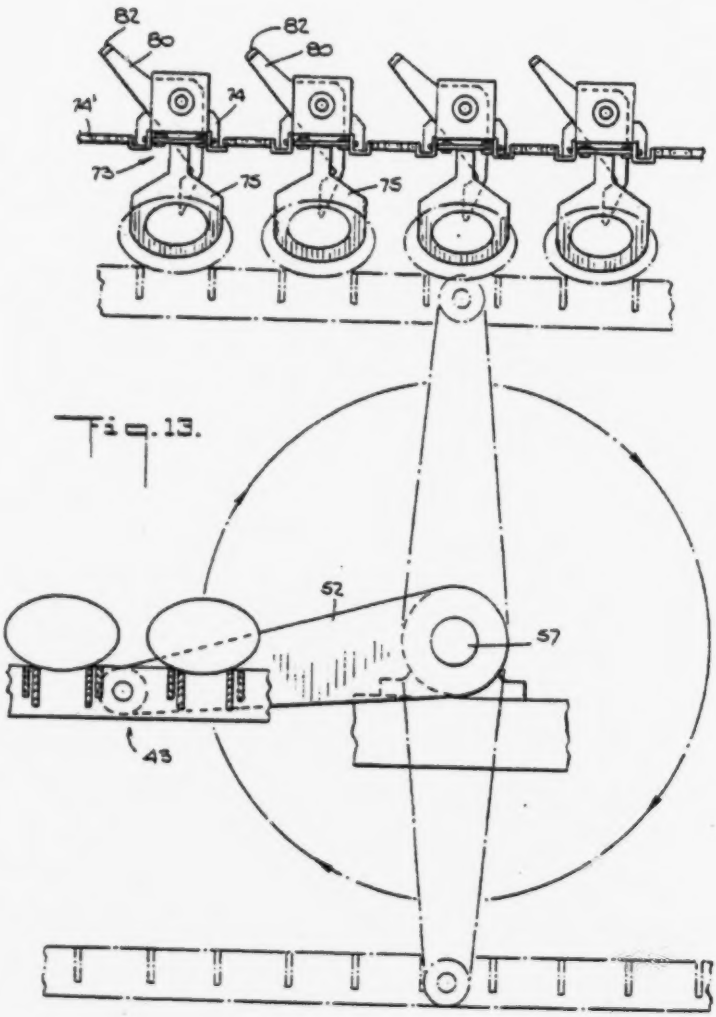

Fig. 13.

Fig. 14.

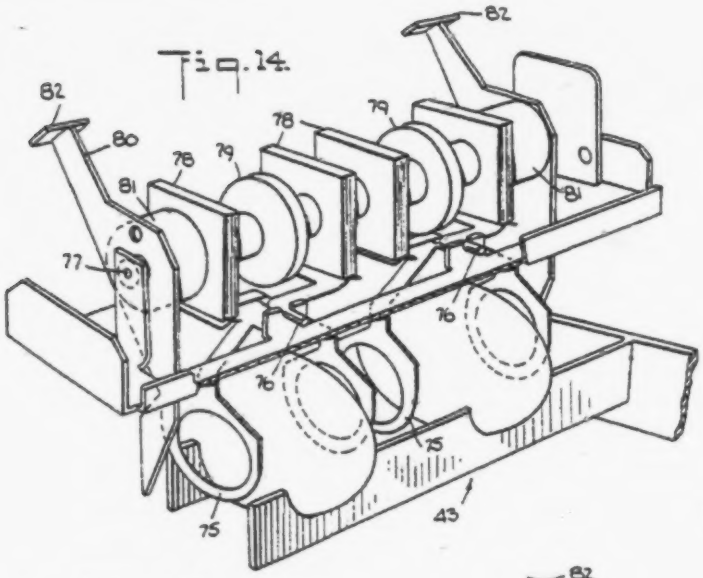

Fig. 15.

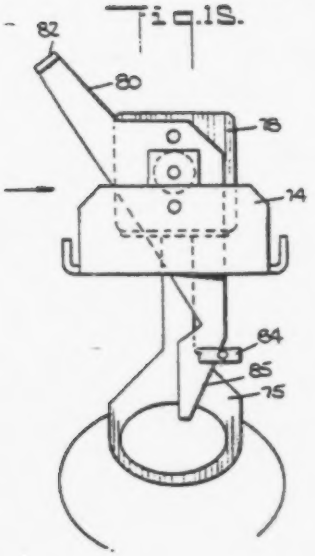

Fig. 15.

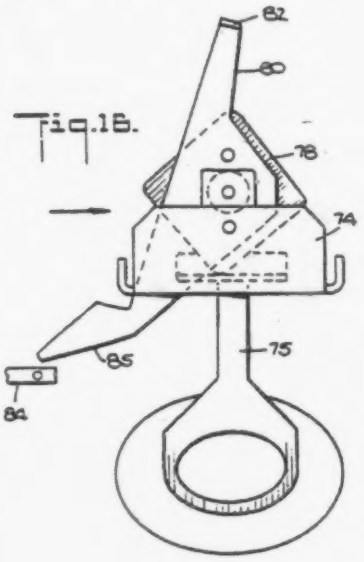

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Fig.17.

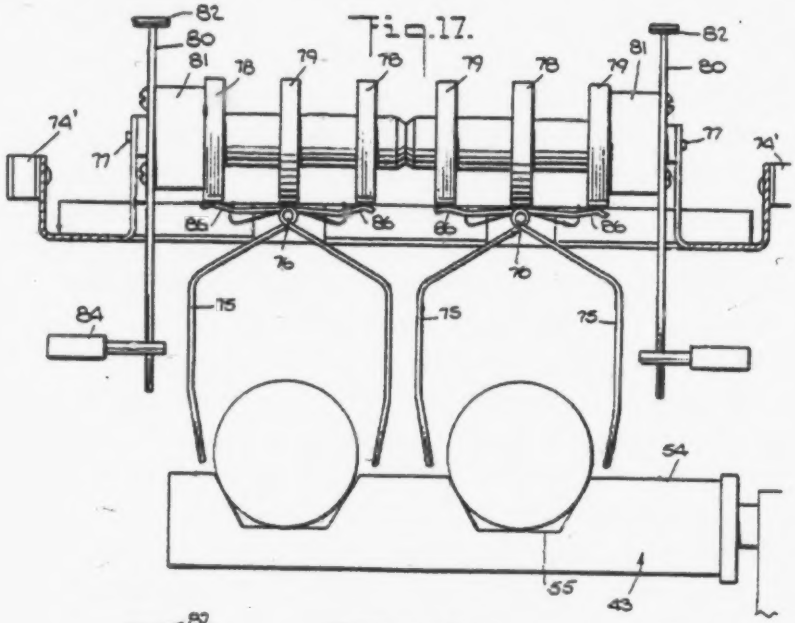
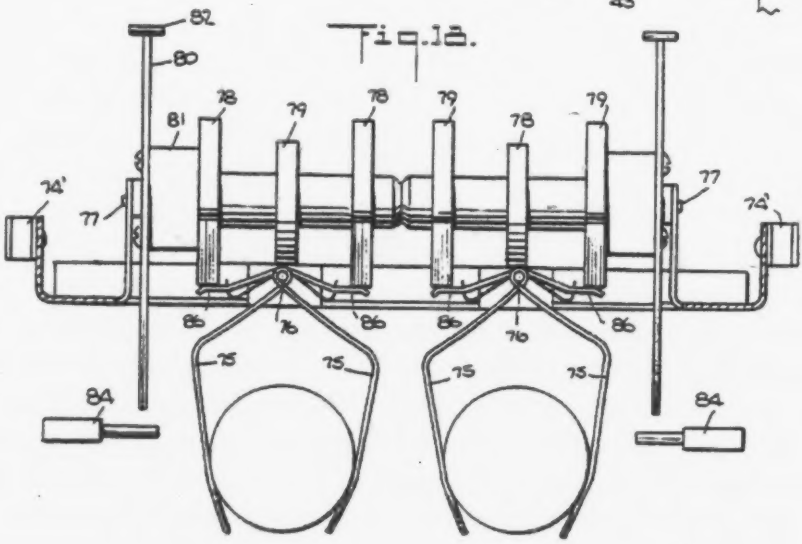


Fig.18.



EGG TRANSFER SYSTEM

BACKGROUND OF THE INVENTION

This application is a continuation-in-part of my prior copending application, Ser. No. 394,443, filed July 1, 1982.

1. Field of the Invention

This invention relates generally to an egg transfer system, and in particular to an egg transfer system for advancing eggs from a candling station to a plurality of weighing stations in an egg grading apparatus in which individual eggs are classified in accordance with their physical characteristics including weight. More particularly, this invention relates to an apparatus and method by which the eggs are transferred from the candling station through the weighing stations to a conveying means which delivers the eggs to egg packers disposed downstream thereof.

2. Description of the Prior Art

In the processing of eggs, one important component of the processing system is an egg grader by means of which each of the eggs being processed is classified or graded in accordance with its particular physical characteristics, including its weight and size. Generally, included in the egg grading process is a candling operation by which defects such as blood spots, dirt stains, rough spots, shell cracks or other defects are identified. In addition, as part of the grading process each egg is weighed in order to determine its size for ultimate packing with other eggs of a generally similar weight and size. In this respect the eggs are weighed in order to facilitate packing in accordance with established weight ranges specified by governmental agencies. Eggs are generally classified into designated classifications, dependent on weight, such as small, medium, large and extra large. In addition, classifications such as peewee and jumbo are utilized for those eggs not falling within the aforementioned weight classifications.

In an egg grader performing the above functions, limitations exist for the performance of the machine which in turn dictate the maximum operating speed for an entire automated egg processing system. In order to improve the operating efficiency of such egg processing systems, the speed at which the egg grader of such a system operates must be increased, which requires the system to have a high-speed response time and yet maintain accurate weighing of the respective eggs.

In such egg grading systems, the weighing of the eggs is inherently limited to an individual measurement of each respective egg being processed. Accurate weighing is of the utmost importance since inaccuracies would result in packaging eggs which are below grade and do not conform with government specifications for a respective size, or which are too heavy, which results in improper and uneconomical packaging. Since the weighing function must be conducted on each egg within a finite, allotted period of time, inevitably this operation places increased demands on the system employed to transfer the egg to the weighing stations, as well as the system employed to remove the egg from the weighing stations. Similarly, increased demands in the form of higher operating speeds are placed on the system utilized for transferring or conveying the eggs for further processing.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide an improved egg transfer system which is capable of advancing an egg from one position to another in an egg grading apparatus while operating at a significantly high rate of speed.

It is also an object of the present invention to provide an improved egg transfer system which is adapted to advance an egg through a plurality of weighing stations in a grading apparatus at which the size of each egg being processed is determined.

It is still another object of the present invention to provide an improved egg transfer system for advancing eggs from a candling station to a plurality of weighing stations in a grading apparatus.

It is still a further object of the present invention to provide an egg lifting system adapted to lift a plurality of eggs upwardly and in a direction away from a plurality of holding stations located adjacent to the weighing stations in a grading apparatus.

It is still another object of the present invention to provide an egg lifting system adapted to lift previously-graded eggs upwardly away from the holding stations and to effect the transfer thereof onto a conveyor means.

It is also an object of the present invention to provide a method of advancing eggs through a plurality of weighing stations in a grading apparatus at which eggs are graded according to their respective size.

These and other objects of the invention are achieved in an apparatus for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, comprising, elogated guide means for receiving eggs from the candling station and guiding the eggs to the weighing stations of the grading apparatus, and first advancing means, disposed vertically above the guide means and adjacent thereto, adapted to individually engage and advance the eggs along the guide means to the weighing stations, the weighing stations being disposed along the guide means so that eggs are advanced over the weighing stations by the advancing means. The apparatus also comprises a plurality of egg holding stations onto which the eggs are advanced by the advancing means, the egg holding stations being disposed in alignment with and downstream of the guide means and the egg weighing stations, and lifting means, adapted to engage a plurality of the eggs from the underside thereof and lift the eggs from the holding stations, the lifting means being rotatably and reciprocally movable

with respect to the egg holding stations, the rotational movement of the lifting means being about an axis which is generally perpendicular to the longitudinal axis of the advancing means and the guide means so as to facilitate the engagement and lifting of the eggs by the lifting means during upwardly rotational movement thereof.

The foregoing objects of the invention are also achieved in a method for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, comprising conveying eggs from the candling station to elongated guide means disposed adjacent to the candling station, continuously advancing the eggs on the guide means through the weighing stations, weighing, simultaneously with the step of advancing, the eggs at the weighing stations, guiding the eggs from the weighing stations to a plurality of egg holding stations, and lifting the eggs from the egg holding stations.

These and other novel features and advantages of the invention will be described in greater detail in the following detailed description.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of an egg grading apparatus utilizing the improved egg transfer system of the present invention;

FIG. 2 is a perspective view of the improved egg transfer system of the present invention;

FIG. 3 is a side view of the egg transfer system;

FIG. 4 is a cross-sectional view of the egg transfer system taken along section 4--4 of FIG. 3;

FIG. 5 is another cross-sectional view of the egg transfer system taken along section 5--5 of FIG. 3;

FIG. 6 is an enlarged perspective view of the egg transfer system;

FIG. 7 is a perspective view of the drive system of the egg transfer system of the present invention;

FIG. 8 is an enlarged partial elevational view of the egg transfer system illustrating an egg being advanced away from the egg weighing station to the egg holding station;

FIG. 9 is an enlarged partial elevational view, similar to that of FIG. 8, illustrating an egg being advanced away from the egg holding station to a horizontally adjacent holding position;

FIG. 10 is an enlarged partial elevational view, similar to that of FIG. 8, illustrating an egg being deposited at the holding station as an egg is advanced away from the holding station to the holding position;

FIG. 11 is an enlarged partial elevational view, similar to that of FIG. 8, illustrating the egg lifting means disposed beneath a pair of eggs located at the holding station and at the holding position;

FIG. 12 is an enlarged partial elevational view, similar to that of FIG. 8, illustrating the upward lifting of the pair of eggs from the holding station and the holding position;

FIG. 13 is an elevational view, looking from the rear of the grading apparatus, of the egg lifting means and conveyor carriage assemblies of the system of the present invention, illustrating the egg carriage assembly in its open position about to engage the eggs;

FIG. 14 is a perspective view of an egg carriage assembly of the egg grading apparatus, illustrating the holding members of the assembly in an egg-engaging position for receiving the eggs from the egg transfer system;

FIG. 15 is a side elevational view, looking from the rear of the grading apparatus, of the egg carriage assembly, illustrating the assembly in its open or egg-releasing position;

FIG. 16 is another side elevational view, looking from the rear of the grading apparatus, illustrating the egg carriage assembly in its closed or egg-engaging position;

FIG. 17 is a front elevational view of the egg carriage assembly showing it in its open position; and

FIG. 18 is another front elevational view of the egg carriage assembly illustrating it in its closed position.

DETAILED DESCRIPTION

Referring now to the drawings, and in particular to FIGS. 1-5, the egg transfer system of the present invention is described in association with an egg grader, portions of which are disclosed in copending applications entitled "Egg Processing System" and "Egg Handling System", Ser. Nos. 394, 162 and 394,161, respectively, filed on July 1, 1982. In the grader, eggs are first routed through an egg candling station 10 at which any defective eggs, e.g., those having cracks, blood spots or the like, are identified. This system is more specifically described in the copending application Ser. No. 394,444, entitled "Article Coding and Separating System" filed July 1, 1982, the disclosure of which is incorporated herein by reference. At the candling station, an operator visually inspects the eggs which are passed over a high- intensity light. As more fully described in application Ser. No. 394,444, each defective egg is identified by the operator and the information is processed and stored in a memory system for later separation of the eggs.

The inspected eggs are conveyed through the candling station 10 by rotating spools 11 of a spool bar conveyor and are fed onto the ends of a plurality of elongated guide bars 12. Each guide bar 12 is formed by a pair of spaced-apart, vertically disposed plate members having substantially horizontal leading edges including curved recesses 13 at the end closest to the candling station in which the egg, after passing through candling station 10, is received. The eggs are gravity fed from candling station 10 by the rotating spools into the recesses 13 at the ends of the guide bars. A series of six guide bars are disposed adjacent one another in the grader, such that six eggs may be fed simultaneously from candling station 10 and advanced through a plurality of weighing stations 14 provided in the grader. After weighing, delivery is

accomplished to a conveyor by the simultaneous transfer of twelve eggs as described later herein. Of course, other multiples of the guide bars may be provided in accordance with the invention.

Located downstream of guide bars 12 are the weighing stations 14. Each weighing station includes a pair of vertically disposed, spaced- apart separate plate members 15 similar to those of guide bars 12 which are adapted to hold an egg and are disposed between the plate members which form the guide bars laterally adjacent apertures 88 provided in each of the plate members so that each egg is supported only by plate members 15, and not guide bars 12, at the weighing stations. Each weighing station also includes a scale member 18 which supports members 15 and is movable in a vertical direction and serves to determine accurately the weight of each egg as it is positioned thereon. The weight of each egg as determined at the weighing stations may then be stored in a memory system, as is more fully described in application Ser. No. 394, 444.

The guide bars 12 each include at least one first portion 16 located between recesses 13 and weighing stations 14 which is inclined upwardly in the direction of movement of the eggs toward the weighing stations at an angle of about 15[deg] with respect to the horizontal. Each guide bar also includes a second portion 17 located downstream of the first portion which begins just before the weighing stations and is inclined downwardly at an angle of about 1.6[deg] with respect to the horizontal. Both portions are formed by the vertically upper edges of the plate members of the guide bars.

A rotatable star wheel 19 is disposed downstream of the second portion 17 of each guide bar and consists of a pair of spaced-apart disks 20 rotatably mounted on an axle 21 coupled to the drive mechanism of the grading apparatus for rotatably conveying eggs from each of the guide bars to a plurality of egg holding stations 22 located

downstream of wheels 19. The disks each include a plurality of peripheral recesses 23 which are disposed in horizontal alignment so as to receive and hold eggs advanced along the guide bars as they are transferred to the holding stations.

The advancing mechanism used to move eggs along the guide bars 12 comprises a chain and sprocket assembly 24 which is disposed vertically above and adjacent guide bars 12. The assembly consists of a pair of chains 25 disposed on sprocket wheels 26 and a plurality of elongated, L- shaped bars 27 mounted on chains 25 transversely with respect to the longitudinal axis of guide bars 12. The sprocket wheels are mounted on axles 30 which are coupled to and driven by the drive mechanism of the grading apparatus. Guide plate members 28 are disposed adjacent the guide bars 12 (see FIGS. 4 and 5) and engage recesses 29 provided in L- shaped bars 27 for guiding bars 27 along an angular horizontal path generally corresponding to the configuration of the upper edges of guide bars 12 formed by first and second portions 16 and 17 as they are advanced by chains 25 and wheels 26. The chain and sprocket assembly is (as shown in FIG. 3) positioned so that as the eggs are conveyed toward the end of the spool bar conveyor and recesses 13 of guide bars 12 from candling station 10, the sprocket wheels of the assembly move bars 27 downwardly and over the rear side of each egg so that bars 27 engage and slidably push each egg into recesses 13 and along the upper edges of guide bars 27 toward weighing stations 14.

The eggs are advanced from the holding stations 22 by means of a drive system illustrated in FIG. 6. The drive system includes an advancing bar 31 comprising an upper horizontal section 32, an inclined intermediate section 33, and a lower section 34, all of which are formed by a pair of spaced-apart vertical plate members which have recesses 35 disposed at their upper ends for holding individual eggs. A main drive motor drives a shaft 36

(see FIG. 7) which in turn is connected to the right angle gear box 37 by a drive chain 38, with an output of gear box 37 driving chain member 39. A pair of oppositely disposed crank members 40 are rotationally driven by chain 39 and are pivotally connected to the lower section 34 of the egg advancing bar 31. Another pair of oppositely disposed crank members 41 are similarly driven by chain 39 and are pivotally connected by way of linkage 42 to the lower section 34 of the egg advancing bar 31. In this manner, the upper horizontal section 32 of the advancing bar is driven in an elliptical or oval path so that the holding stations 22, and a plurality of coplanar egg pick-up positions (described later herein) located adjacent to and horizontally spaced- apart from the holding stations, are disposed along the major axis of the elliptical path.

With particular reference to FIGS. 7 through 13, the advancement of the eggs from holding stations 22 is described. Eggs are rotatably lifted from the downwardly inclined second portion of guide bars 12 by the wheels 19 and are fed by the wheels into the holding stations 22. Advancing bars 31, and in particular recesses 35 therein, engage the eggs in the holding stations from the underside thereof and lift the eggs upwardly as shown in FIGS. 8 and 9. As each advancing bar is lowered along its elliptical path (FIG. 10), the eggs are moved downwardly into pick-up positions adjacent the holding stations which are horizontally spaced-apart from and coplanar with holding stations 22 as illustrated in FIG. 11. At the same time, a second egg is lifted from the downwardly inclined second portion of each of guide bars 12 and is fed into holding stations 22.

Once two eggs are in position at the holding stations and on the advancing bars 31 in the adjacent pick-up positions, the eggs are lifted vertically upwardly in pairs (FIG. 12) by a plurality of lifting arms 43 each comprising a pair of vertical, spaced-apart plates. Arms 43 move

both rotationally with respect to holding stations 22 as well as in a direction longitudinally with respect thereto. The drive system for lifting arms 43 is illustrated in FIG. 7. A main drive motor is coupled to drive shaft 36, which has mounted thereon a differential speed cam 44 and sprocket drive chains 38 and 45. Chain 38, as previously described, provides the drive for advancing bars 31. Chain 45, which is driven by sprocket 46 in turn serves to drive a pair of differential speed drive sprockets 47 and 48. Each of the sprockets 47 and 48 drives the respective shafts 49 and 50 in a counterclockwise direction, the shafts having mounted on the ends thereof crank arms 51 and 52, respectively. Each rotary crank arm 51 and 52 is fastened to an elongated support bar 53 to which is mounted twelve (12) individual vertical lifting plates 54, each having a pair of recesses 55 for receiving and holding eggs. Each adjacently spaced pair of lifting plates forms a lifting arm 43 and serves to lift a pair of eggs. Support bar 53, thus, facilitates the simultaneous lifting of six pairs or two rows of six side-by-side eggs. In other words, adjacently spaced lifting plates 54 serve to lift simultaneously twelve (12) eggs from the holding stations 22 and adjacent pick-up positions on advancing bars 31. Cam 56 is mounted at the end of main drive shaft 36 and is engaged with cam follower 57 mounted on the pivotable arm 58 which in turn is connected at the end thereof to connecting linkage 59. Linkage 59 is pivotally connected to the right angle drive arm 60 which in turn drives coupling bar 61 with an oscillating motion about shaft 62. Drive bar 63 is reciprocally driven in a direction toward and away from holding stations 22 by means of coupling bar 63 which is connected thereto via pin 64 slidably mounted in slot 65.

Cam 44 is in rotational engagement with a cam follower 66 mounted on an arm 67 which has mounted at its upper end an idler 68 and at its lower end is pivotally connected by a shaft 69 to pivotable arm 58. Chain 45 is further

routed over idler sprocket 70 which in turn is mounted on an idler arm 71 fastened to a spring 72. In this manner, the spring loaded idler arm 71 serves to maintain tension in the drive chain 45 while support bar 53 is driven both rotationally and longitudinally with respect to holding stations 22. Further, differential speed cam 44 serves to regulate the rotational drive speed of lifting arms 43 such that when the arms arrive at the holding stations 22 (when the eggs are being removed therefrom), the rotational speed of the arms is decreased to facilitate the smooth upward lifting of the eggs from the stations.

In this latter connection, reference is made to FIG. 13 in which the rotational movement of crank arm 52 and lifting arms 43 is illustrated. As illustrated, lifting arms 43 engage the eggs from the underside thereof at holding stations 22 and the pick-up positions on advancing bars 31 which are positioned in the rotational path of the arms at approximately the nine o'clock position. Arms 43 are then rotated clockwise and at the twelve o'clock position each of the eggs is brought within the depending arms of an egg carriage assembly 73 which is part of a conveyor driven by a chain 74'. At this position, both the eggs and carriage assembly are travelling at the same speed to properly effect transfer.

Referring to FIGS. 14-15, the carriage assemblies 73 are more fully disclosed in copending application Ser. No. 394,430, entitled "Egg Carrier" filed on July 1, 1982, the disclosure of which is incorporated herein by reference. Briefly, each carriage assembly includes a sheet metal platform 74 which has mounted thereon a pair of depending prongs or egg-engaging members 75. Prongs 75 are pivotally mounted and positioned opposite one another in order to engage an egg therebetween across its smaller side or width. The lower portions of the prongs are curved so as to approximate the curvature across the smaller width of the egg. The upper portions are reversely bent so as to provide a surface having a

generally horizontal orientation. The bent portion of each prong is mounted on a fixed shaft 76 so as to be pivotally movable with respect thereto. The opposing prong is similarly mounted over shaft 76 with the free end thereof in engagement with the generally horizontal portion of the other prong.

A mounting shaft 77 is positioned on the platform 74 generally perpendicular with respect to the fixed shafts 76. Cam members 78 have a generally square profile and are pivotally mounted on shaft 77 with the operative bottom flat surfaces thereof being in engagement with the horizontal surfaces of egg-engaging prongs 75. An integral spacer 79 is disposed between adjacent cam members 78 in order to maintain the proper spacing and engagement of the horizontal cam engaging surface with the horizontal surface of the egg-engaging prongs 75. Coupled to each end of cam members 78 is an extension bar 80 which is spaced from the end cam member 78 by integral spacer 81. Bar 80 is provided with an upper T-shaped portion 82 which is engageable with a solenoid-actuated plunger 83 in order to actuate the rotational movement thereof. Each bar 80 is fastened or directly coupled to the adjacent spacer 81, cam 78, intermediate spacer 79 and the adjacent cam 78. In this manner, each pair of egg-engaging prongs 75 is operated independent of one another although mounted to a common shaft 77.

In operation, the eggs are conveyed by the spools 11 from candling station 10 and fed to the leading edges of the guide bars 12. Bars 27 then engage the eggs and slidably advance them into recesses 13 and continuously along the guide bars 12 toward weighing stations 14, at which the weight of each individual egg is measured. During the weighing operation, the eggs are continuously advanced off guide bars 12 at apertures 88 and over plate members 15 supported by the scales of the weighing stations to permit the weighing of each individual egg, and then off plate members 15 and back onto guide bars 12 toward

wheels 20, which rotatably convey the eggs to holding stations 22.

Lifting arms 43 rotate about an axis offset from the line formed between the holding stations 22 and the adjacent pick-up positions so that the pairs of eggs disposed at the holding station and in the pick-up positions on the advancing bars are engaged from the underside thereof when the lifting arms reach approximately a nine o'clock position (looking from the rear of the grading apparatus). Arms 43 are moved vertically upwardly from the holding stations and pick-up positions to the carriage assemblies 73 which arrive at a comb assembly 84 with bar 80 in the position depicted in FIG. 15, i.e., in its open or egg-engaging position. Once the eggs are in a position coincident with the approximate center of prongs 75 (approximately the twelve o'clock position), a prong of the comb assembly 84 is positioned in the path of the lower surface 85 of extension bar 80 and, as explained in greater detail in application Ser. No. 394,162, the comb assembly 84 closes or latches prongs 75 on twelve eggs simultaneously so that the prongs engage and securely hold the eggs in the carriage assemblies.

When a prong of comb assembly 75 engages lower surface 85 of extension bar 80, the bar is caused to rotate in a clockwise direction (looking from the rear of the machine) while rotating cam members 78 therewith. Cams 78 are rotated approximately 45[deg] such that the angular or corner portion thereof moves the horizontal surface 86 of the egg- engaging prongs 75 downwardly. The downward movement of the generally horizontal cam-engaging surface 86 causes the lower egg- engaging portion of prongs 75 to move inward with respect to one another and close into an engaging relationship with the egg. In this manner, the egg is thus lifted from lifting arms 43 and conveyed to a packaging position downstream in the grading apparatus.

When bar 80 is pivotally moved into the closed position (FIG. 16), the lower portion thereof engages platform 74 which in turn limits the rotational movement of the bar. After the eggs are received in the carriage assemblies, reciprocating drive bar 63 horizontally moves the lifting arms away from holding stations 22 before the arms are moved downwardly and beneath the next pairs a distance equal to one egg position on the arms so as to avoid any collision between the eggs being removed from the holding stations by the advancing bars and the subsequent eggs being advanced to the pick-up positions. Once the eggs arrive above the appropriate packer 87 (FIG. 1), a separate actuating means engages the upper T-shaped portions 82 of extension bars 80 causing the same to move in a counter-clockwise direction (looking from the rear of the grading apparatus) thereby releasing the eggs from the carriage assemblies 73. In this respect, a solenoid-activated plunger is moved into the path of the carriage assemblies so that the end thereof engages the T-shaped portions 82 of the extension bars. Thus, counterclockwise rotation of bars 80 from the position depicted in FIG. 16 to that depicted in FIG. 15 causes the prongs 75 to pivot outwardly with respect to one another due to the force exerted by the spring member which urges prongs 75 toward the open or release position. Thus there has been described an effective system for continuously transferring eggs toward and away from a plurality of weighing stations at which the size characteristics of each eggs are measured. In particular, the system provides for the continuous side-by- side movement of multiple rows of eggs, six in the described embodiment, through a plurality of weighing stations with each egg being advanced individually but in side-by-side relationship. The characteristics of each egg may be measured and stored in a memory system in accordance with which information the eggs are later deposited for packing into designated cartons.

Although the above description is directed to a preferred embodiment of the invention, it is noted that other variations and modifications will be apparent to those skilled in the art, and, therefore, may be made without departing from the spirit and scope of the present disclosure.

What is claimed is:

1. An apparatus for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, comprising,

first elongated guide means for receiving eggs from said candling station and guiding said eggs to the weighing stations of said grading apparatus,

first advancing means, disposed vertically above said guide means and adjacent thereto, adapted to individually engage and advance said eggs along said guide means to said weighing stations, said weighing stations being disposed along said guide means so that eggs are advanced over said weighing stations by said advancing means,

a plurality of egg holding stations onto which said eggs are advanced by said advancing means, said egg holding stations being disposed in alignment with and downstream of said guide means and said egg weighing stations, and

lifting means, adapted to engage a plurality of said eggs from the underside thereof and lift said eggs from said holding stations, said lifting means being rotatably and reciprocally movable with respect to said egg holding stations, the rotational movement of said lifting means being about an axis which is generally parallel to the longitudinal axis of said guide means so as to facilitate the engagement and lifting of said eggs by said lifting means during upwardly rotational movement thereof.

2. The apparatus recited in claim 1, wherein said guide means includes at least one first portion which is inclined upwardly in the direction of movement of said eggs on said guide means toward said weighing stations, and at least one second portion which is inclined downwardly in the direction of movement of said eggs on said guide means away from said egg weighing stations toward said egg holding stations.

3. The apparatus recited in claim 2, wherein said upwardly inclined portion of said guide means is disposed at an angle of about 15. degree. with respect to the horizontal, and wherein said downwardly inclined portion of said guide means is disposed at an angle of about 1. 6[deg] with respect to the horizontal.

4. The apparatus recited in claim 3, wherein the end of said first portion of said guide means and the beginning of said second portion of said guide means are located ahead of said weighing stations in the direction of movement of said eggs on said guide means.

5. The apparatus recited in claim 4, wherein each of said guide means comprises a pair of spaced-apart vertically disposed planar guide members, the vertically upper edges of said guide members being co- planar and forming said first and second inclined portions of said guide means, said egg holding stations being disposed at one end of said guide members, said guide members further including substantially horizontal leading edges including curved recesses for receiving eggs to be advanced on said guide members to said weighing stations.

6. The apparatus recited in claim 5, wherein said advancing means comprises a plurality of elongated bar means disposed transversely with respect to the longitudinal axis of said guide means, said bar means being adapted for linear movement approximately parallel to said vertically upper edges of said guide members of said guide means.

7. The apparatus recited in claim 6, wherein said advancing means further comprises chain and sprocket means disposed adjacent to said guide means, said bar means being coupled to said chain and sprocket means, and second guide means disposed adjacent to said first guide means and adapted to engage said bar means for guiding said bar means as said bar means are advanced by said chain and sprocket means in a direction generally parallel to said vertically upper edges of said guide members of said guide means.

8. The apparatus recited in claim 1, further comprising second advancing means rotatably movable with respect to said egg holding stations, said second advancing means being adapted to engage eggs on said holding stations from the underside thereof during rotary movement of said second advancing means and to advance eggs from said holding stations to a location longitudinally spaced-apart from and substantially horizontally co-planar with said egg holding stations, the reciprocal movement of said lifting means being generally parallel to the longitudinal axis of said guide means and sufficient to reciprocate said lifting means away from said egg holding stations as said second advancing means moves away from said egg holding stations.

9. The apparatus recited in claim 8, wherein said lifting means comprises, elongated lifting member means including means adapted to engage said eggs at said egg holding stations and at said longitudinally spaced- apart locations on said second advancing means from the underside thereof and lift said eggs therefrom,
crank member means coupled to said lifting member means,
rotary drive means coupled to said crank member means for rotationally driving said lifting member means with respect to said egg holding stations, the drive axis of said crank member means being offset with respect to said egg holding stations so that said lifting member means is

rotationally movable into engagement with eggs disposed at said egg holding stations and said longitudinally spaced-apart locations from the underside thereof to effect lifting of said eggs upwardly and away therefrom, and

reciprocating drive means coupled to said lifting member means for reciprocally moving said lifting member means toward and away from said egg holding stations.

10. The apparatus recited in claim 9, wherein said egg grading apparatus includes carriage assembly means adapted to be conveyed in a generally linear direction through a line generally tangent to the path of travel of said lifting member means, said carriage assembly means including oppositely disposed egg-engaging member means pivotally movable with respect to each other so as to engage and close upon eggs disposed on said lifting member means, said egg-engaging member means having downwardly depending curved portions contoured to conform to the shape of said eggs to facilitate a holding engagement therewith, and means coupled to said egg-engaging member means adapted to pivotally close said egg- engaging member means as said carriage assembly passes said lifting member means, thereby transferring said eggs to said carriage assembly means.

11. The apparatus recited in claim 10, wherein said elongated lifting member means includes receiving means adapted to receive a plurality of pairs of said eggs engaged at said egg holding stations and at said longitudinally spaced-apart locations on said second advancing means by said lifting member means, and wherein said carriage assembly means includes a plurality of pairs of egg-engaging member means to facilitate the simultaneous transfer of a plurality of pairs of eggs from said lifting member means to said carriage assembly means.

12. The apparatus recited in claim 1, wherein said egg grading apparatus further comprises conveyor means for

conveying eggs through said egg candling station, said guide means being disposed adjacent one end of said conveyor means downstream of said candling station for receiving eggs from said conveyor means.

13. The apparatus recited in claim 1, wherein said first advancing means further comprises rotatable wheel means disposed between said weighing stations and said egg holding stations and including a plurality of egg receiving means for receiving eggs advanced through said weighing stations by said first advancing means, said wheel means rotatably conveying said eggs from said guide means toward said egg holding stations.

14. The apparatus recited in claim 13, wherein said wheel means comprises a pair of rotatable, spaced-apart, parallel disk members adapted for rotational movement toward said egg holding stations, said disk members including a plurality of peripheral recesses, said recesses in said disk members being disposed in horizontal alignment for receiving and holding eggs transferred from said guide means to said egg holding stations by said wheel means.

15. An apparatus for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, said apparatus including conveying means for conveying eggs through said egg candling station, comprising,

elongated guide means for receiving eggs from said candling station and guiding said eggs to said weighing stations of said grading apparatus, said guide means being disposed adjacent one end of said conveyor means downstream of said candling station for receiving eggs from said conveyor means,

said guide means further including at least one first portion which is inclined upwardly in the direction of movement of said eggs on said guide means toward said weighing stations, and at least one second portion which is inclined downwardly in the direction of movement of

said eggs on said guide means away from said egg weighing stations, the end of said first portion of said guide means and the beginning of said second portion of said guide means being located ahead of said weighing stations in the direction of movement of said eggs on said guide means, said second portion having an angle of inclination with respect to the horizontal which is less than that of said first upwardly inclined portion,

first advancing means, disposed vertically above said guide means and adjacent thereto, adapted to individually engage and advance said eggs along said guide means to said weighing stations, said weighing stations being disposed along said guide means so that eggs are advanced over said weighing stations by said advancing means,

a plurality of egg holding stations onto which said eggs are advanced by said advancing means, said holding stations being disposed in alignment with and downstream of said guide means and said egg weighing stations, and

lifting means, adapted to engage a plurality of said eggs from the underside thereof and lift said eggs from said holding stations, said lifting means being rotatably and reciprocally movable with respect to said egg holding stations, the rotational movement of said lifting means being about an axis which is generally parallel to the longitudinal axis of said guide means so as to facilitate the engagement and lifting of said eggs by said lifting means during upwardly rotational movement thereof.

16. The apparatus recited in claim 15, wherein said upwardly inclined first portion of said guide means is disposed at an angle of about 15. degree. with respect to the horizontal, and wherein said downwardly inclined second portion of said guide means is disposed at an angle of about 1.6[deg] with respect to the horizontal.

17. The apparatus recited in claim 15, wherein each of said guide means comprises a pair of spaced-apart,

vertically disposed planar guide members, the vertically upper edges of said guide members being co- planar and forming said first and second inclined portions of said guide means, said egg holding stations being disposed at one end of said guide members, said guide members further including substantially horizontal leading edges including curved recesses for receiving eggs to be advanced on said guide members to said weighing stations.

18. The apparatus recited in claim 17, wherein said advancing means comprises a plurality of elongated bar means disposed transversely with respect to the longitudinal axis of said guide means, said bar means being adapted for linear movement approximately parallel to at least a portion of said guide means.

19. The apparatus recited in claim 18, wherein said advancing means further comprises chain and sprocket means disposed adjacent to said guide means, said bar means being coupled to said chain and sprocket means, and second guide means disposed adjacent to said first guide means and adapted to engage said bar means for guiding said bar means as said bar means are advanced by said chain and sprocket means in a direction generally parallel to said vertically upper edges of said guide members of said guide means.

20. The apparatus recited in claim 15, further comprising second advancing means rotatably movable with respect to said egg holding stations, said second advancing means being adapted to engage eggs on said holding stations from the underside thereof during rotary movement of said second advancing means and to advance eggs from said holding stations to a location longitudinally spaced-apart from and substantially horizontally co-planar with said egg holding stations, the reciprocal movement of said lifting means being generally parallel to the longitudinal axis of said guide means and sufficient to reciprocate said lifting means away from said egg holding stations as said

second advancing means moves away from said egg holding stations.

21. The apparatus recited in claim 20, wherein said lifting means comprises,

elongated lifting member means including means adapted to engage said eggs at said egg holding stations and at said longitudinally spaced- apart locations on said second advancing means from the underside thereof and lift said eggs therefrom,

crank member means coupled to said lifting member means,

rotary drive means coupled to said crank member means for rotationally driving said lifting member means with respect to said egg holding stations,

the drive axis of said crank member means being offset with respect to said egg holding stations so that said lifting member means is rotationally movable into engagement with eggs disposed at said egg holding stations and said longitudinally spaced-apart locations from the underside thereof to effect lifting of said eggs upwardly and away therefrom, and

reciprocating drive means coupled to said lifting member means for reciprocally moving said lifting member means toward and away from said egg holding stations.

22. The apparatus recited in claim 15, wherein said first advancing means further comprises rotatable wheel means disposed between said weighing stations and said egg holding stations and including a plurality of egg receiving means for receiving eggs advanced through said weighing stations by said first advancing means, said wheel means rotatably conveying said eggs from said guide means toward said egg holding stations.

23. The apparatus recited in claim 22, wherein said wheel means comprises a pair of rotatable, spaced-apart, parallel disk members adapted for rotational movement toward said egg holding stations, said disk members including a plurality of peripheral recesses, said recesses

in said disk members being disposed in horizontal alignment for receiving and holding eggs transferred from said guide means to said egg holding stations by said wheel means.

24. A method for advancing a plurality of rows of eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, comprising,
conveying eggs from said candling station to elongated guide means disposed adjacent to said candling station,
continuously advancing said eggs on said guide means through said weighing stations,
simultaneously with said step of advancing, weighing said eggs at said weighing stations,
guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations,
guiding further eggs to said plurality of holding stations, and
lifting said eggs simultaneously from said holding stations and said plurality of longitudinally spaced-apart locations.

25. The method recited in claim 24, wherein said step of advancing comprises advancing said eggs on said guide means upwardly in the direction of movement of said eggs toward said weighing stations at an angle of about 15[deg] with respect to the horizontal.

26. The method recited in claim 25, wherein said step of advancing further comprises advancing said eggs on said guide means upwardly toward said weighing stations at said angle of about 15[deg] with respect to the horizontal to locations adjacent and ahead of said weighing stations in the direction of movement of said eggs on said guide means.

27. The method recited in claim 26, wherein said step of guiding further comprises guiding said eggs downwardly

away from said locations through said weighing stations toward said egg holding stations at an angle of about 1.6[deg] with respect to the horizontal.

28. An apparatus for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus, comprising,

first elongated guide means for receiving eggs from said candling station and guiding said eggs to the weighing stations of said grading apparatus,

first advancing means, disposed vertically above said guide means and adjacent thereto, adapted to individually engage and advance said eggs along said guide means to said weighing stations, said weighing stations being disposed along said guide means so that eggs are advanced over said weighing stations by said advancing means,

a plurality of egg holding stations onto which said eggs are advanced by said advancing means, said egg holding stations being disposed in alignment with and downstream of said guide means and said egg weighing stations, and

second advancing means rotatably and reciprocally movable with respect to said egg holding stations, said second advancing means being adapted to engage eggs on said holding stations from the underside thereof during rotary movement of said second advancing means and to advance eggs from said holding stations to a location longitudinally spaced-apart from and substantially horizontally co-planar with said egg holding stations.

29. The apparatus recited in claim 28, further comprising lifting means, adapted to engage a plurality of said eggs from the underside thereof and lift said eggs from said holding stations and from said longitudinally spaced-apart locations on said second advancing means, said lifting means being rotatably and reciprocally movable with respect to said egg holding stations, the rotational movement of said lifting means being about an axis which

is generally parallel to the longitudinal axis of said guide means so as to facilitate the engagement and lifting of said eggs by said lifting means during upwardly rotational movement thereof, the reciprocal movement of said lifting means being generally parallel to the longitudinal axis of said guide means and sufficient to reciprocate said lifting means away from said egg holding stations as said second advancing means moves away from said egg holding stations.

30. The apparatus recited in claim 29, wherein said lifting means comprises,

elongated lifting member means including means adapted to engage said eggs at said egg holding stations and at said longitudinally spaced- apart locations on said second advancing means from the underside thereof and lift said eggs therefrom,

crank member means coupled to said lifting membe means,

rotary drive means coupled to said crank member means for rotationally driving said lifting member means with respect to said egg holding stations, the drive axis of said crank member means being offset with respect to said egg holding stations so that said lifting member means is rotationally movable into engagement with eggs disposed at said egg holding stations and said longitudinally spaced-apart locations from the underside thereof to effect lifting of said eggs upwardly and away therefrom, and

reciprocating drive means coupled to said lifting member means for reciprocally moving said lifting member means toward and away from said egg holding stations.

31. The apparatus recited in claim 30, wherein said egg grading apparatus includes carriage assembly means adapted to be conveyed in a generally linear direction through a line generally tangent to the path of travel of said lifting member means, said carriage assembly means including oppositely disposed egg-engaging member

means pivotally movable with respect to each other so as to engage and close upon eggs disposed on said lifting member means, said egg-engaging member means having downwardly depending curved portions contoured to conform to the shape of said eggs to facilitate a holding engagement therewith, and means coupled to said egg-engaging member means adapted to pivotally close said egg engaging member means as said carriage assembly passes said lifting member means, thereby transferring said eggs to said carriage assembly means.

32. The apparatus recited in claim 31, wherein said elongated lifting member means includes receiving means adapted to receive a plurality of pairs of said eggs engaged at said egg holding stations and at said longitudinally spaced-apart locations on said second advancing means by said lifting member means, and wherein said carriage assembly means includes a plurality of pairs of egg-engaging member means to facilitate the simultaneous transfer of a plurality of pairs of eggs from said lifting member means to said carriage assembly means.

33. The apparatus recited in claim 28, wherein said guide means includes at least one first portion which is inclined upwardly in the direction of movement of said eggs on said guide means toward said weighing stations, and at least one second portion which is inclined downwardly in the direction of movement of said eggs on said guide means away from said egg weighing stations toward said egg holding stations.

34. The apparatus recited in claim 33, wherein said upwardly inclined portion of said guide means is disposed at an angle of about 15. degree. with respect to the horizontal, and wherein said downwardly inclined portion of said guide means is disposed at an angle of about 1. 6[deg] with respect to the horizontal.

35. The apparatus recited in claim 34, wherein the end of said first portion of said guide means and the beginning

of said second portion of said guide means are located ahead of said weighing stations in the direction of movement of said eggs on said guide means.

36. The apparatus recited in claim 35, wherein each of said guide means comprises a pair of spaced-apart, vertically disposed planar guide members, the vertically upper edges of said guide members being co- planar and forming said first and second inclined portions of said guide means, said egg holding stations being disposed at one end of said guide members, said guide members further including substantially horizontal leading edges including curved recesses for receiving eggs to be advanced on said guide members to said weighing stations.

37. The apparatus recited in claim 36, wherein said first advancing means comprises a plurality of elongated bar means disposed transversely with respect to the longitudinal axis of said guide means, said bar means being adapted for linear movement approximately parallel to said vertically upper edges of said guide members of said guide means.

38. The apparatus recited in claim 37, wherein said first advancing means further comprises chain and sprocket means disposed adjacent to said guide means, said bar means being coupled to said chain and sprocket means, and second guide means disposed adjacent to said first guide means and adapted to engage said bar means for guiding said bar means as said bar means are advanced by said chain and sprocket means in a direction generally parallel to said vertically upper edges of said guide members of said guide means.

39. The apparatus recited in claim 28, wherein said egg grading apparatus further comprises conveyor means for conveying eggs through said egg candling station, said guide means being disposed adjacent one end of said conveyor means downstream of said candling station for receiving eggs from said conveyor means.

40. The apparatus recited in claim 28, wherein said first advancing means further comprises rotatable wheel means disposed between said weighing stations and said egg holding stations and including a plurality of egg receiving means for receiving eggs advanced through said weighing stations by said first advancing means, said wheel means rotatably conveying said eggs from said guide means toward said egg holding stations.

41. The apparatus recited in claim 40, wherein said wheel means comprises a pair of rotatable, spaced-apart, parallel disk members adapted for rotational movement toward said egg holding stations, said disk members including a plurality of peripheral recesses, said recesses in said disk members being disposed in horizontal alignment for receiving and holding eggs transferred from said guide means to said egg holding stations by said wheel means.

Now, the evidence as we hear from -- that we hear from Diamond is that there were all sorts of claims and patents that were infringed. I am going to get fairly specific in laying out the road map, and you will see that although there are three claims made with regard to the 444 patent, they basically have common elements. The ones that we don't infringe are comment elements for all three.

There is one claim -- two claims for the 494, very similar one to another, and one claim each for the 373 and the 505 patent. Those are the issues before this jury, whether those claims were infringed. And, our evidence will be that we did not infringe.

Now, it has been -- a patent claim has been analogized to a recipe. And, as with the recipe, and this is the Diamond claim in red, as with the recipe if you have all the ingredients to the recipe you infringe. Likewise, and the Judge will instruct you as to the law, we simply argue what we think the law will be that the Judge will instruct you, but I

will go so far as to say that you have to find that every element of a claim is present, either the claim literally or under this doctrine of equivalents we're going to tell you about, and unless every element or ingredient of that recipe is present, then there is no infringement.

Now, I will go through in general the evidence that will be presented, but our evidence will be that we do not have all the elements of these claims. And, I'll tell you which ones we don't have. Do we have some? You bet. I'll also show you the prior art, and all of these machines have some of the elements, and most of the elements many of them have. So that if you're going to talk about

egg machines, you're going to be talking about the elements that are referred to here.

But, the problem will be and the evidence will show that the problem is that Diamond is stretching these claims and arguing that they are broader than they are in order to try to show that there is infringement here. And, that's why there's another block, because our evidence will be that if one were to interpret these claims. Now, the Judge is in charge of claims interpretation and he has already ruled as to interpretation, but their argument as to our device, including the elements of these claims, stretches these claims beyond what is permissible. And, what happens? What happens is that the claims then cover what's called the prior art.

And, the law, once again, this is Baughman's law, it's

not the law that I assert, and I believe the Judge will charge you, that if a prior art device or a prior art patent has all the elements of that later claim, the claim is invalid. It's anticipated by the prior art. It's not new. A claim -- you can only have a valid patent claim if something new is in it. And, our argument -- not our argument, our evidence will be that if you read the claims the way they want to read them, that the prior art infringes; that is, the patent is invalid.

Now, and let me just say there are two different kinds of invalidity in that regard. I've just talked about what's called anticipation. Because if there is a prior art machine and it has all of the elements of the claim, then it anticipates it. If it has all of the elements but, let's say, one, and another piece of prior art has that other element and if it would be obvious to combine the two, then the patent is invalid for obviousness. And, you will see both situations arising, and I will go through those claims.

Now, finally, if a claim reads on a device that the patent doesn't talk about or doesn't teach you how to make, then there is another section of the patent statute that says if you have an invention, you've got to teach somebody how to practice that invention; you have to teach them. And, the question will be, does that claim teach how to make this lifting mechanism that the Omnia has?

And, you will see it is not only totally different, but

there's no way that reading that claim you could know how to do the Omnia lifting device. And, that is the other kind of invalidity that will be talked about as we proceed to present our evidence here.

Now, last one, the 505 patent. And, basically, it's the same device except some things were improved. And, we'll take a look at the claims on that. Excuse me, not the claims, the figures to show how it's improved.

Okay. Now, this is a method for moving the eggs, advancing them from a cambling station through a plurality of weighing stations and then it says you weigh the eggs and then guiding said eggs from the weighing stations first to a plurality of egg holding stations located downstream and then to a plurality of locations longitudinally spaced apart from at substantially co-planer width said holding stations. Then guiding further eggs to the plurality of holding stations. And, the Judge has interpreted this, put them in three numbered paragraphs, lift them.

Now, let's take a look. This is what they're doing. They're bringing it down and it weighs the eggs up here, brings

it down with this star wheel, puts it out onto this point. That's a holding station. Then it has just a one-prong advancing bar this time and it lifts that egg out to there and then it drops the other egg -- another egg down off of the star wheel and now it's got two eggs in position for lifting.

What's their problem? Setting it up. It's an improvement. Their prior setup was more complicated. This is another invention. It's terrific except we did not have that problem. We don't have to set anything up. We lift off of a moving conveyor belt. We have no holding stations. We have no three separate steps, and that's our position on that.

If you find that we infringed, we will ask you to look at those old Moba machines that I showed you before, the 9A, that keep going like this. And, every element of the claim, we will contend and have our expert, and he will agree, reads on that claim.

Finally, we will ask the question of our experts and ask you to find whether their patent teaches lifting from a moving conveyor. And, that will be the last issue we'll raise there.

505, last one. Now, do you have the figures on the 505 for advancing? But you can actually do the advancing bar as we showed you earlier. Put this up here. Okay. The – yeah, this is a modified and better because – simpler way of getting the two eggs out. And, that's what the 505 uses. It comes down on a star wheel and then it is lifted by the advancing bar out to what they call a spaced apart longitudinally something or other quotation. And, then another egg comes down on the star wheel and then the two of them are lifted.

Now, another part of the invention, if you will, in the 505 is that instead of stopping to weigh the eggs, they weigh the eggs as they're coming down, moving down an advancing bar. And, knowing that we now can address the – let's see – the – what we do not have here is any of the lifting steps. And, there is three of them, although it's in two paragraphs here. If you look at your Markman ruling, the Judge has three numbered paragraphs. "Guiding said eggs from said weighing

station, first to a plurality of egg holding stations located down stream of said guide means and then to a plurality of locations longitudinally spaced apart from and substantially (inaudible) with said holding stations."

And, then as a third step, "guide further eggs to said plurality of holding stations." Now, by the way, holding stations is defined, I think, in the 505. And, I think it says a place where an egg may maintain position until it's picked up with another egg. And, once again, this is a continuously moving overhead conveyor that we have, I would point out. But aside from that and aside from not having holding stations, we do not have any of the three guiding steps. We simply move the eggs down on the continuously moving conveyor and lift them up. Or as Dr. Kirk said, I think, "move, move, lift."

Now, are these required? Are separate steps required? Well, I showed you in the file history where they darn well are because they drafted the claim and it said, "moving the – guiding the eggs first to – or first to a plurality of egg holding stations and then to a plurality of locations longitudinally spaced apart from . . ." blah, blah, and they didn't have the last step. And, the examiner said, "It seems to me that's invalid, you only have one egg. And, he said, "I think what you meant to say was," and he added that for them or suggested to them and they added that and said "thank you very much."

So it's clear that these separate guiding steps are required. It's equally clear that – and I've heard inklings of arguments, oh, well, we're really doing all of this simultaneously, and the point is that – first of all, they say when they're continuously moving things, and they get pretty upset if you claim that they're not continuously moving, and Mr. McEvoy, you might remember, when I had him reading some of the prior art, got pretty picky with me about whether something is continuously moving or not. And, they clearly are saying here that they are continuously advancing said eggs on said guide means through the weighing stations. And, then they know how to use the word "simultaneously" because they said "simultaneously they're weighing eggs." They're continuously moving and simultaneously weighing the eggs.

You next have three guiding steps and you next have lifting the eggs simultaneously. Now, to me that is absolutely clear that they don't have it. In fact, you know, to be very simplistic about it, if you tried to apply these three guiding steps to an overhead – to a – not an overhead, to a conveyor like ours where you've got these little cups, if you had an egg here and you say, take the first step, guiding the eggs to the holding station, you move it over to here. And then it says taking the eggs from here to a separately set apart location – I'm not using the right words, but so you take it, say, okay, I'm going to put it over here. You just broke the conveyor

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belt. I mean, that's not the way a conveyor works.

Now, you know, don't be so picky, these are all the same things. Let me remind you what Mr. McEvoy said

when I suggested to him that this – that – when I suggested to him that – get my notes, -- yeah, he said when I suggested to him that guiding the eggs from the candling station to the elongated guide means on the type nine – do you remember the type nine video, they had a roller – a roller conveyor? And I said, well, that's guiding the eggs; right? His testimony, "that is not guiding, it's carrying them, it's not guiding them." His own testimony, when you're talking about invalidity as opposed to infringement was he wasn't willing to accept that a conveyor belt was guiding. The inventor, the expert witness for the other side.

Now, once again, if there is infringement found here, if this is what we're doing, I would suggest that the old Moba machines do, indeed, do the same thing and all those steps are present. And, Dr. Kirk went through them all if you want to be lousy-goosy about things like holding stations and guide means and things like that. And, so that is reading – once again, remember the square. This is the patent claim, this is the prior art. We don't claim that this patent is invalid but if you read it like that it most certainly is.

And, finally, once again, if this patent applies to a continuously moving, albeit it slows down, absolutely,

conveyor, it doesn't teach you how to do that. It doesn't say anything about it. It is certainly not easy to do, in fact, it's very intricate and difficult to do as you can see from the model. Doctrine of equivalents.

So the question is, does what they do do the same thing we do under the doctrine of equivalents? And, here I would point out that it clearly does not use substantially – it certainly has the same function. It sets up the eggs for lifting, no doubt about it. But it certainly doesn't do it in substantially the same way. That's what I've been taking about for the last ten minutes that it

doesn't do it in the same way or let alone – in the same way at all let alone substantially in the same way.

So in any event, our contention is that that patent is not infringed. If, and only if, it is infringed, we'd ask you to look at those issues of validity.